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Division Waste Management

Section Superfund

Program IHS (IHS)

DocCat Facility



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Dexter R. Matthews

Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

1/20/2010

Mr. Ronald Lewis
Burke County Manager
PO Box 219
Morganton, NC 28680

Subject: Pre-Regulatory Landfill Sites in Burke County

Dear Mr. Lewis:

The General Assembly of North Carolina enacted Senate Bill 1492 which created a program to assess the public health and environmental hazards at landfill and dump sites that operated prior to 1983 and to develop and implement remedial action plans at sites requiring remediation. The Pre-Regulatory Landfill Unit (Unit) was created in the Inactive Hazardous Sites Branch (IHSB) to oversee these activities. The purpose of this letter is to make you aware of the sites identified in your county and to provide general guidance of relevant state statutes.

Based on the information obtained by the Unit, the sites listed below tentatively qualify under Senate Bill 1492.

<u>ID Number</u>	<u>Site Name</u>	<u>Site Address</u>
NONCD0000168	Bristol Creek Community Dump	1180 Sundance Ln, Chesterfield
NONCD0000172	Drexel Dump	524 Bryant Rd, Drexel
NONCD0000169	Dysartsville Dump	5391 Morning Star Church Rd, Dysartsville
NONCD0000173	Glen Alpine Dump	2414 Conley Bumgarner Rd, Glen Alpine
NONCD0000170	Hildebran Disposal Area	Texas Fish Camp Rd, Hildebran
NONCD0000171	Henry River Community Dump	4300 Henry River Rd, Hildebran
NONCD0000177	Morganton Dump	Vine Arden Rd, Morganton
NONCD0000174	Valdese Refuse Dump	1400 Falls Rd NW, Valdese

Work at these sites may be performed using the Unit's resources or through local government actions. The Unit has prioritized the sites statewide based on their threat to public health and the environment and will perform assessments and implement remedial actions based on this priority. Local governments may opt to perform the work at any time under the guidance of the Unit. Reimbursement of local government costs may be available for assessments and remedial actions to abate an imminent hazard as funds are available. The conditions for reimbursement include approval of the assessment and remediation plan by the Unit and certified accounting of costs. A document, *IHSB Guidelines for Addressing Old Landfills &*

Dumps, was developed to assist local governments and the Unit in this work. It is available on our web site, http://wastenotnc.org/sfhome/IHSBRNCH_OldLandfills.HTM, for your review.

An additional purpose in notifying you of these sites is to provide information to assist in your responsibilities in the permitting of private drinking water wells. The General Assembly enacted legislation which required local health departments to implement programs for the permitting, inspecting, and testing of private drinking water wells by July 1, 2008. State well construction standards in 15A NCAC 2C require a minimum horizontal separation of 500 feet between a water supply well and a landfill or disposal site. More precise location information for the sites in your county may be requested from the Unit.

If you are aware of additional sites, have additional information on the identified sites, or need further information, please contact me at (919) 508-8484.

Sincerely,



Aaron Shear, Hydrogeologist
Pre-Regulatory Landfill Unit
Inactive Hazardous Sites Branch
Superfund Section

cc: Mr. Roger Wesley – Burke County Environmental Health Supervisor II



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

June 13, 2007

Steve Watts, Director
NC School for the Deaf
Morganton, NC 28655

Re: NC School for the Deaf-Morganton
Morganton, Burke Co., NC

Dear Mr. Watts,

On March 28, 2007 the above referenced site was recently inspected to determine if the property had previously been used as a landfill or dump and to identify any potential hazards because of its use as a landfill or dump. That inspection confirmed the presence of a landfill or dump.

A report was submitted to the Division of Waste Management by the State's consultant identifying the property's past use as a landfill or dump and included general information about the site. No immediate hazard was observed on the property. The site will remain as part of the State's inventory of dumps or landfills and continue to be part of public record.

There are hundreds of landfills and dumps cataloged in the State's inventory. These sites are prioritized based on the threat to human health and the environment. It is the owner's and the responsible party's responsibility to find final solutions for containment of the waste and to ensure safe reuse of these old landfills and dumps.

Thank you for your cooperation in allowing access to your property. If you would like to reach a final resolution for your property or have any questions regarding the content of the report please call either Cheryl Marks at (919) 508-8465 or Bruce Lefler at (919) 508-8463.

Sincerely,

Cheryl Marks, Hydrogeologist
Inactive Hazardous Site Branch
NC Division of Waste Management

JOB STATUS REPORT

TIME : 03/12/2007 14:20
NAME : SUPERFUND SECTION
FAX# : 9197334811
TEL# :
SER.# : BR03J1503210

DATE, TIME
FAX NO./NAME
DURATION
PAGE(S)
RESULT
MODE

03/12 14:19
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OK
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NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR

SUPERFUND SECTION
FAX TRANSMITTAL RECORD

DATE: March 12, 2007

TO: Gary Rogers Schnabel Engineering

FAX #: (336) 274-9486

FROM: Cheryl Marks

RE: Burke County

Number of pages (including cover): 3



**NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT**

**MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR**

***SUPERFUND SECTION
FAX TRANSMITTAL RECORD***

DATE: March 12, 2007

TO: Gary Rogers Schnabel Engineering

FAX #: (336) 274-9486

FROM: Cheryl Marks

RE: Burke County

Number of pages (including cover): 3

Comments:

Confirm receipt of document(s):

Cheryl Marks

Superfund Section (919) 508-8465

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
SANITARY ENGINEERING SECTION

REPORT OF INVESTIGATION OR INSPECTION OF Roadside dumping complaint

Place visited Old Shelby Rd. (N.C. 18) Henry Fork River Inter- Date July 6 19 77
section
Address Morganton, North Carolina, Burke County Time spent 2 hours
By whom Mr. William L. Meyer, District Sanitarian, Division of Health Services
Mr. Elmo Pascal, Sanitarian Supervisor, Burke County Health Department;
Persons contacted Mr. John Whitzner, Burke County Department of Transportation
(Owner, agent, tenant, manager, other)
Reason for visit Investigate roadside dumping complaint

Copies to: Mr. R. F. McGhee, 4113 Redington Drive, Raleigh, NC 27609
Mr. Elmo J. Pascal, Sanitarian Supervisor, 601 E. Concord St., Morganton, NC 28655
Mr. John Whitzner, Dept. of Transportation, P. O. Box 1951, Asheville, NC 28802

OBSERVATIONS:

A dumping site consisting of household garbage, rubble and appliances, was located 1500' north of Henry Fork River and east of Old N.C. 18. The site extends from the shoulder of N.C. 18, down a steep grade to the banks of Henry Fork River; is 50-60 feet in width and covers an area of approximately 1,000 square feet.

ACTION TAKEN:

Mr. Elmo Pascal, Burke County Sanitarian Supervisor and Mr. Gary Owens, Burke County Solid Waste Enforcement Officer were notified of continued complaints on this dumping site. It was recommended that Mr. Chester West, Director of Burke County Community Development, be requested to determine the feasibility of locating containers in the vicinity of the dumping site. Mr. John Whitzner, North Carolina Department of Transportation, was notified that the dumping site was on North Carolina highway right-of-way and was requested to assist in covering the site.

WLM/tg

- Burke
LRR

10

May 13, 1975

Mr. D. E. Moyes, Manager
Essex International, Inc.
Metal & Plastics Division
Asheville Road
Morganton, North Carolina 28655

Re: Factory Waste Disposal

Dear Mr. Moyes:

After an investigation at the landfill and with county and health officials, I find that your factory waste is apparently going to the landfill.

The records show there was a lapse in receiving the waste at the landfill and probably this was when it was being taken to the Westview Presbyterian Church on Highway 64 approximately six miles South of Morganton.

Yours very truly,

J. N. Fulp, Sr., District Sanitarian
Drawer 520, Wilkesboro, N. C. 28697

JNF:bm

cc: Mr. Elmo Pascal, R.S.
Mr. O. W. Strickland
Essex International, Inc., Metal & Products Div.,
1601 Wall Street, Fort Wayne, Indiana 46804



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

February 26, 2007

<SAL> <FIRST> <LAST>, County Manager
County of <MUNICIPALITY>
<ADDRESS>
<TOWN>, North Carolina <ZIP>

Subject: Assessment, Cleanup, and Redevelopment of Old Landfill Sites Within Your Jurisdiction

Dear <SAL> <LAST>:

Governor Easley released his proposed budget February 22, 2007. Included in the budget is a specific item I believe should be of interest to you from a fiscal, environmental and public health protection perspective.

There are approximately 700 old landfills statewide and <LANDFILL#> old landfills in your local area that closed before the State permitting system became effective. These landfills are listed on the Old Landfill Sites portion of the Inactive Hazardous Sites Inventory maintained by the Superfund Section, Division of Waste Management. Any person, including local governments, that arranged for disposal or disposed of waste in the landfills may be held liable for the cleanup of the site. I have attached a report that identifies the location of known old landfill sites in <COUNTY NAME> County that may have closed prior to 1983 and thus qualify for the program described in this letter.

The Division has surveyed old landfills in 47 counties. The results of the survey indicate reason for concern about potential public health and safety impacts of these sites if they are not addressed. Seventy percent of the sites surveyed had a school, church, residence, day care or drinking water source within 1000 feet. The Division has found 102 old landfills that have a drinking water well within 500 feet. Thirteen of the landfills surveyed have residences built over the old landfill. The cost of assessment and cleanup of these old landfill sites can be as high as several million dollars.

Governor Easley's budget establishes a partnership between the State and local governments to both clean up the old landfill sites and provide funding for redevelopment of the sites. Many are in prime locations for redevelopment opportunities. The Governor's budget proposes to pay for cleanup and redevelopment of these sites through a surcharge on disposal of solid waste. The funding mechanism is a fair one. It is based on the idea that those who use solid waste disposal facilities should share responsibility for cleanup of sites used for solid waste disposal in the past that may have been lawful at the time, but did not meet standards that we now know are necessary to protect public health and safety.

The proposed \$2.00 per ton disposal surcharge would apply to residential, commercial, industrial, and construction and demolition debris type waste that is either disposed at a landfill or passes through a transfer station for disposal out-of-state. The State would use revenue from the surcharge to contract for cleanup of the old landfill sites and to provide grants to local government for redevelopment. The funds could also be used across the state to clean up other hazardous substance disposal sites that have no viable responsible party.

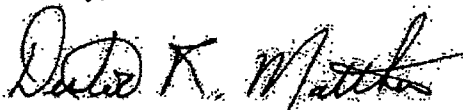
The only tool currently available to the State to ensure cleanup when it is needed is an enforcement action against those who owned, operated, or contributed to old landfills. The Governor's proposal would avoid placing an unreasonable

burden on any one local government and allow us to use our resources for actual cleanup rather than legal action. When old landfill sites were in use, North Carolina citizens, businesses, and industries benefited from their existence as a place to dispose of waste. The surcharge on waste disposal is a way for citizens, businesses, and industries to form a partnership for cleanup and redevelopment of these old landfill sites.

There is great interest this session of the General Assembly in strengthening requirements for landfills permitted in North Carolina. I encourage you to take a close look at legislation that will be introduced, specifically this initiative and what it can bring to your jurisdiction.

If you have questions regarding the program for clean-up of old landfills, please contact Jack Butler, Chief of the Superfund Section, at jack.butler@ncmail.net or call (919)508-8450.

Sincerely,

A handwritten signature in dark ink, appearing to read "Dexter R. Matthews". The signature is fluid and cursive, with the first name "Dexter" and last name "Matthews" clearly distinguishable.

Dexter R. Matthews, Director

cc: David Thompson, NCACC
Jack Butler, Chief – Superfund Section



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

February 27, 2007

<SAL> <FIRST> <LAST>
<TITLE>, <MUNICIPALITY>
<ADDRESS>
<TOWN>, North Carolina <ZIP>

Subject: Assessment, Cleanup, and Redevelopment of Old Landfill Sites Within Your Jurisdiction

Dear <SAL> <LAST>:

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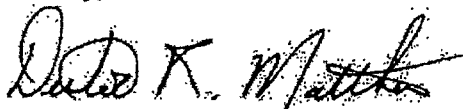
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There is great interest this session of the General Assembly in strengthening requirements for landfills permitted in North Carolina. I encourage you to take a close look at legislation that will be introduced, specifically this initiative and what it can bring to your jurisdiction.

If you have questions regarding the program for clean-up of old landfills, please contact Jack Butler, Chief of the Superfund Section at jack.butler@ncmail.net or (919) 508-8450.

Sincerely,

A handwritten signature in dark ink, appearing to read "Dexter R. Matthews". The signature is fluid and cursive, with the first name "Dexter" being more prominent.

Dexter R. Matthews, Director

cc: Ellis Hankins, NCLM
Jack Butler, Chief – Superfund Section

The mailing list for these letters is filed in a folder in the first file cabinet drawer for the old landfill sites.

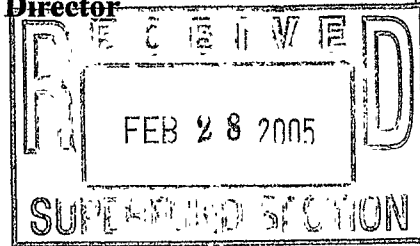
A statewide Old Landfill Inventory report is filed in a folder in the first file cabinet drawer for the old landfill sites.



Burke County General Services

P.O. Box 1486 Morganton, N.C. 28680-1486 • (828) 439-4391 • Fax (828) 439-4396

Dale A. Meyer, Director



February 21, 2005

Cheryl Marks
NCDENR
Division of Waste Management
1646 Mail Service Center
Raleigh NC 27699-1646

Dear Cheryl:

Thank you for taking time to speak with me about the state's efforts to gain information on old unlined landfills in Burke County.

It is my understanding that landfills that are regulated by post-closure regulations do not need to be discussed as part of your efforts in gaining this information. Two of the landfills mentioned in your preliminary request are covered by post-closure rules and regulations: Kirksey Drive landfill (Permit #12-01) and Rhodhiss landfill (Permit #12-02).

The other landfills that you included in your request appear to have accurate information on each sheet. I have no additional knowledge of information related to these sites.

In the event you would like to visit these sites please let me know and I would be happy to accompany you.

If I may be of further assistance please contact me at (828) 439-4391.

Sincerely,

Dale Meyer
Burke County General Services

Old Landfill Inventory - Location Information

Latitude/Longitude and other data in this report is highly subject to inaccuracies. State Plane coordinates replace latitude/longitude entries as data is collected. These coordinates may also be subject to error.

COUNTY: BURKE

Site Name:	BRISTOL CREEK COMM. DUMP	In IHS Inventory?	No
ID Number:	NONCD0000168	Other Agency Lead	
Site Address:	SR 1431	NFA or NFA-Restricted Use?	No
City:		Unable to Locate	<input type="radio"/>
State Plane X:		Latitude:	35.8219
State Plane Y:		Longitude:	-81.6727

Directions: SR 1431, @ END OF RD

LDFL Size (Acres):	1	Present Within 1000 ft of Ldfl			
Property Size (Acres):	2	Church	No	Residence On Ldfl?	No
Date Open:	1966	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	DREXEL DUMP	In IHS Inventory?	No
ID Number:	NONCD0000172	Other Agency Lead	
Site Address:	BRYANT RD	NFA or NFA-Restricted Use?	No
City:	DREXEL	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7629
State Plane Y:	Longitude:	-81.5909

Directions: · BRYANT RD

LDFL Size (Acres):	3	Present Within 1000 ft of Ldfl			
Property Size (Acres):	5	Church	No	Residence On Ldfl?	No
Date Open:	1966	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	DYSARTSVILLE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000169	Other Agency Lead	
Site Address:	DYSARTSVILLE R	NFA or NFA-Restricted Use?	No
City:	DYSARTSVILLE	Unable to Locate	<input type="radio"/>

State Plane X:		Latitude:	35.6473
State Plane Y:		Longitude:	-81.8344

Directions: DYSARTSVILLE RD

LDFL Size (Acres):	2	Present Within 1000 ft of Ldfl			
Property Size (Acres):	2	Church	No	Residence On Ldfl?	No
Date Open:	1965	School	No	Potable Well Within 500 ft?	No
Date Closed:	1970	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	GLEN ALPINE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000173	Other Agency Lead	
Site Address:	SR 1230	NFA or NFA-Restricted Use?	No
City:	ST PAUL	Unable to Locate	<input type="radio"/>

State Plane X:		Latitude:	35.7474
State Plane Y:		Longitude:	-81.8101

Directions: SR 1230, 2 MI S OF ST PAUL

LDFL Size (Acres):	6	Present Within 1000 ft of Ldfl			
Property Size (Acres):	9	Church	No	Residence On Ldfl?	No
Date Open:	1965	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	HENRY RIVER COMM. DUMP	In IHS Inventory?	No
ID Number:	NONCD0000171	Other Agency Lead	
Site Address:	SR 1002	NFA or NFA-Restricted Use?	No
City:		Unable to Locate	<input type="radio"/>
State Plane X:		Latitude:	35.6915
State Plane Y:		Longitude:	-81.4263
Directions:	SR 1002		

LDFL Size (Acres):	2	Present Within 1000 ft of Ldfl			
Property Size (Acres):	5	Church	No	Residence On Ldfl?	No
Date Open:	1966	School	No	Potable Well Within 500 ft?	No
Date Closed:	1973	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	HILDEBRAN DISPOSAL AREA	In IHS Inventory?	No
ID Number:	NONCD0000170	Other Agency Lead	
Site Address:	SR 1627	NFA or NFA-Restricted Use?	No
City:	HILDEBRAN	Unable to Locate	<input type="radio"/>
State Plane X:		Latitude:	35.7348
State Plane Y:		Longitude:	-81.4378
Directions: SR 1627			

LDFL Size (Acres):	2	Present Within 1000 ft of Ldfl			
Property Size (Acres):	5	Church	No	Residence On Ldfl?	No
Date Open:	1964	School	No	Potable Well Within 500 ft?	No
Date Closed:	1972	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	KIRKSEY DRIVE LF	In IHS Inventory?	No
ID Number:	NONCD0000175	Other Agency Lead	SWS
Site Address:	SR 1443 (KIRKSEY	NFA or NFA-Restricted Use?	No
City:	MORGANTON	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.771
State Plane Y:	Longitude:	-81.6581

Directions: SR 1443 (KIRKSEY DR) OFF US 64 & 70 BUS

LDFL Size (Acres):	15	Present Within 1000 ft of Ldfl			
Property Size (Acres):	15	Church	No	Residence On Ldfl?	No
Date Open:		School	No	Potable Well Within 500 ft?	No
Date Closed:	1989	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes: HAZARDOUS MATERIALS FROM ASTRO INDUSTRIES. PERMIT # 12-01

(End Site Record)

Site Name:	MORGANTOWN DUMP	In IHS Inventory?	No
ID Number:	NONCD0000177	Other Agency Lead	
Site Address:	AMHURST RD	NFA or NFA-Restricted Use?	No
City:	MORGANTON	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7629
State Plane Y:	Longitude:	-81.6503

Directions: AMHURST RD, 3 MI NE OF TOWN

LDFL Size (Acres):	80	Present Within 1000 ft of Ldfl			
Property Size (Acres):	160	Church	No	Residence On Ldfl?	No
Date Open:	1950	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	RHODHISS LANDFILL	In IHS Inventory?	No
ID Number:	NONCD0000176	Other Agency Lead	SWS
Site Address:	SR 1611	NFA or NFA-Restricted Use?	No
City:	ICARD	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.767
State Plane Y:	Longitude:	-81.4313

Directions: SR 1611, 3.5 MI FROM INTERSECTION WITH US 70 & 64

LDFL Size (Acres):	19	Present Within 1000 ft of Ldfl			
Property Size (Acres):	19	Church	No	Residence On Ldfl?	No
Date Open:	.	School	No	Potable Well Within 500 ft?	No
Date Closed:	1991	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes: SLUDGES CONTAINING PHENOLS FROM BY DANA CORP. PERMIT # 12-02

(End Site Record)

Site Name:	VALDESE REFUSE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000174	Other Agency Lead	
Site Address:	LAUREL RD	NFA or NFA-Restricted Use?	No
City:	VALDESE	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7687
State Plane Y:	Longitude:	-81.5623

Directions: LAUREL RD, 2 MI NW OF TOWN

LDFL Size (Acres):	10	Present Within 1000 ft of Ldfl			
Property Size (Acres):	27	Church	No	Residence On Ldfl?	No
Date Open:	1962	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Number of Sites: 10 (End County Record)



North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor

William G. Ross Jr., Secretary

January 31, 2005

Mr. Ron George
County Manager
PO Box 219
Morgantown, North Carolina 28680-0219

Re: Request for Information on old unlined landfills, Burke County.

Dear Mr. George,

The Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch (Branch) is in the process of cataloging old landfills in the state. This letter is being sent to you to solicit your cooperation in providing information on old unlined landfills that are not subject to Division of Waste Management, Solid Waste Section post-closure regulations in your county. This process is a part of a statewide effort to accurately inventory old dumpsites to aid in safe reuse and to protect public health and the environment.

Once an old landfill site has been identified, the site location, site usage, and vicinity usage is researched. Potential hazards to the public and the environment are then evaluated by risk assessment. Sites then are reviewed based on risk and/or by safe redevelopment requests.

The Branch then works with owners and responsible parties on final solutions for containment of the waste and to ensure safe reuse of the old landfill sites. Safe reuse might involve engineering controls to prevent exposure to wastes, if necessary, and restrictive covenants limiting the property to certain uses and setting conditions for construction or other soil disturbing activities. Annual reporting that restrictive covenants remain in place will be a duty of the current owner.

Known old landfills/dump sites are maintained in a database. Attached is a listing of known sites located in your county. Available information that may include location and years of operation information for each site is also listed. Please review the list and verify or provide information that will more accurately characterize the site(s). If you have knowledge of sites not included on the list, please add the additional sites along with location information, directions, years of operation, and any additional notable information.

Please return the list and any additional information within 90 days to:

Cheryl Marks
Inactive Hazardous Sites Branch
Superfund Section
NC Division of Waste Management
401 Oberlin Road - Suite 150
Raleigh, NC 27605-1350

Or you may email me with your response at Cheryl.Marks@ncmail.net or call with any questions concerning this request at (919) 733-2801, extension 283. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink that reads "Cheryl Marks". The signature is written in a cursive, flowing style.

Cheryl Marks, Hydrogeologist
Inactive Hazardous Site Branch
NC Superfund Section

Old Landfill Inventory - Location Information

Latitude/Longitude and other data in this report is highly subject to inaccuracies. State Plane coordinates replace latitude/longitude entries as data is collected. These coordinates may also be subject to error.

COUNTY: BURKE

Site Name:	BRISTOL CREEK COMM. DUMP	In IHS Inventory?	No
ID Number:	NONCD0000168	Other Agency Lead	
Site Address:	SR 1431	NFA or NFA-Restricted Use?	No
City:		Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.8219
State Plane Y:	Longitude:	-81.6727

Directions: SR 1431, @ END OF RD

LDFL Size (Acres):	1	Present Within 1000 ft of Ldfl			
Property Size (Acres):	2	Church	No	Residence On Ldfl?	No
Date Open:	1966	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	DREXEL DUMP	In IHS Inventory?	No
ID Number:	NONCD0000172	Other Agency Lead	
Site Address:	BRYANT RD	NFA or NFA-Restricted Use?	No
City:	DREXEL	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7629
State Plane Y:	Longitude:	-81.5909

Directions: BRYANT RD

LDFL Size (Acres): 3 Property Size (Acres): 5 Date Open: 1966 Date Closed: 1971	Present Within 1000 ft of Ldfl			
	Church	No	Residence On Ldfl?	No
	School	No	Potable Well Within 500 ft?	No
	Day Care	No	Adjoins Perennial SW?	No
	Residential	No		

Notes:

(End Site Record)

Site Name:	DYSARTSVILLE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000169	Other Agency Lead	
Site Address:	DYSARTSVILLE R	NFA or NFA-Restricted Use?	No
City:	DYSARTSVILLE	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.6473
State Plane Y:	Longitude:	-81.8344

Directions: DYSARTSVILLE RD

LDFL Size (Acres):	2	Present Within 1000 ft of Ldfl			
Property Size (Acres):	2	Church	No	Residence On Ldfl?	No
Date Open:	1965	School	No	Potable Well Within 500 ft?	No
Date Closed:	1970	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	GLEN ALPINE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000173	Other Agency Lead	
Site Address:	SR 1230	NFA or NFA-Restricted Use?	No
City:	ST PAUL	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7474
State Plane Y:	Longitude:	-81.8101

Directions: SR 1230, 2 MI S OF ST PAUL

LDFL Size (Acres):	6	Present Within 1000 ft of Ldfl			
Property Size (Acres):	9	Church	No	Residence On Ldfl?	No
Date Open:	1965	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	HENRY RIVER COMM. DUMP	In IHS Inventory?	No
ID Number:	NONCD0000171	Other Agency Lead	
Site Address:	SR 1002	NFA or NFA-Restricted Use?	No
City:		Unable to Locate	<input type="radio"/>
State Plane X:		Latitude:	35.6915
State Plane Y:		Longitude:	-81.4263
Directions:	SR 1002		

LDFL Size (Acres):	2	Present Within 1000 ft of Ldfl			
Property Size (Acres):	5	Church	No	Residence On Ldfl?	No
Date Open:	1966	School	No	Potable Well Within 500 ft?	No
Date Closed:	1973	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	HILDEBRAN DISPOSAL AREA	In IHS Inventory?	No
ID Number:	NONCD0000170	Other Agency Lead	
Site Address:	SR 1627	NFA or NFA-Restricted Use?	No
City:	HILDEBRAN	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7348
State Plane Y:	Longitude:	-81.4378

Directions: SR 1627

LDFL Size (Acres): 2 Property Size (Acres): 5 Date Open: 1964 Date Closed: 1972	Present Within 1000 ft of Ldfl			
	Church	No	Residence On Ldfl?	No
	School	No	Potable Well Within 500 ft?	No
	Day Care	No	Adjoins Perennial SW?	No
	Residential	No		

Notes:

(End Site Record)

Site Name:	KIRKSEY DRIVE LF	In IHS Inventory?	No
ID Number:	NONCD0000175	Other Agency Lead	SWS
Site Address:	SR 1443 (KIRKSEY	NFA or NFA-Restricted Use?	No
City:	MORGANTON	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.771
State Plane Y:	Longitude:	-81.6581

Directions: SR 1443 (KIRKSEY DR) OFF US 64 & 70 BUS

LDFL Size (Acres): 15 Property Size (Acres): 15 Date Open: Date Closed: 1989	Present Within 1000 ft of Ldfl			
	Church	No	Residence On Ldfl?	No
	School	No	Potable Well Within 500 ft?	No
	Day Care	No	Adjoins Perennial SW?	No
	Residential	No		

Notes: HAZARDOUS MATERIALS FROM ASTRO INDUSTRIES. PERMIT # 12-01

(End Site Record)

Site Name:	MORGANTOWN DUMP	In IHS Inventory?	No
ID Number:	NONCD0000177	Other Agency Lead	
Site Address:	AMHURST RD	NFA or NFA-Restricted Use?	No
City:	MORGANTON	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7629
State Plane Y:	Longitude:	-81.6503

Directions: AMHURST RD, 3 MI NE OF TOWN

LDFL Size (Acres):	80	Present Within 1000 ft of Ldfl			
Property Size (Acres):	160	Church	No	Residence On Ldfl?	No
Date Open:	1950	School	No	Potable Well Within 500 ft?	No
Date Closed:	1971	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes:

(End Site Record)

Site Name:	RHODHISS LANDFILL	In IHS Inventory?	No
ID Number:	NONCD0000176	Other Agency Lead	SWS
Site Address:	SR 1611	NFA or NFA-Restricted Use?	No
City:	ICARD	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.767
State Plane Y:	Longitude:	-81.4313

Directions: SR 1611, 3.5 MI FROM INTERSECTION WITH US 70 & 64

LDFL Size (Acres):	19	Present Within 1000 ft of Ldfl			
Property Size (Acres):	19	Church	No	Residence On Ldfl?	No
Date Open:		School	No	Potable Well Within 500 ft?	No
Date Closed:	1991	Day Care	No	Adjoins Perennial SW?	No
		Residential	No		

Notes: SLUDGES CONTAINING PHENOLS FROM BY DANA CORP. PERMIT # 12-02

(End Site Record)

Site Name:	VALDESE REFUSE DUMP	In IHS Inventory?	No
ID Number:	NONCD0000174	Other Agency Lead	
Site Address:	LAUREL RD	NFA or NFA-Restricted Use?	No
City:	VALDESE	Unable to Locate	<input type="radio"/>

State Plane X:	Latitude:	35.7687
State Plane Y:	Longitude:	-81.5623

Directions: LAUREL RD, 2 MIN NW OF TOWN

LDFL Size (Acres): 10 Property Size (Acres): 27 Date Open: 1962 Date Closed: 1971	Present Within 1000 ft of Ldfl			
	Church	No	Residence On Ldfl?	No
	School	No	Potable Well Within 500 ft?	No
	Day Care	No	Adjoins Perennial SW?	No
	Residential	No		

Notes:

(End Site Record)

Number of Sites: 10 (End County Record)

- Burke
JWR/C

December 11, 1979

Mr. Kenneth Thompson
County Manager
Human Resource Center
Morganton, NC 28655

Dear Sir:

In reviewing our records I find that there has been major violation on your two landfill sites over an extended period of time.

I request a meeting with you and your board at your earliest convenience so that a solution suitable to each party may be agreed upon.

Thanking you in advance for your cooperation.

Sincerely,

O. W. Strickland, Head
Solid & Hazardous Waste Management Branch
Environmental Health Section

OWS:ns

cc: Mr. Robert M. Apple
Mr. Julian M. Foscoe, III
Mr. Johnny Pons, Chairman, County Commissioners
Mr. Elmo Pascal, Health Director

September 6, 1979

Mr. Kenneth R. Thompson
County Manager
Post Office Box 219
Morganton, NC 28655

Dear Mr. Thompson:

Your letter of August 29, 1979 in reference to the review of solid waste management facilities located in Burke County has been received.

JWTC

This office will comply with your request as we try to cooperate with all local units of government

Sincerely,

O. W. Strickland, Acting Head
Solid & Hazardous Waste Management Program
Sanitary Engineering Section

OWS:ns

cc: Mr. Robert M. Apple



Burke County

Burke County Commissioners

JOHN C. PONS, *Chairman*
ROBERT L. NETHERTON, *Vice Chairman*
CHARLES L. WINTERS, JR.
JAMES B. CATES
JAMES M. GORDON

KENNETH R. THOMPSON, *County Manager*

August 29, 1979

Mr. O. W. Strickland
Division of Health Services
Solid Waste & Vector Control Branch
Sanitary Engineering Section
P. O. Box 2091
Raleigh, NC 27602



Dear Mr. Strickland:

Burke County maintains solid waste disposal facilities for the citizens of the County. It is recognized that other units of government, private enterprise or other persons may from time to time wish to establish additional solid waste disposal facilities in Burke County.

The Burke County Board of Commissioners request that any and all requests to locate any and all types of solid waste disposal facilities within the County of Burke be submitted to the Burke County Board of Commissioners for concurrent approval. This request is specifically made of the North Carolina State Board of Health, Sanitary Engineering Division or any other agency that may review such proposed facilities. The Board of Commissioners will made the proper review agency aware of their concurrence or nonconcurrence of such proposal within a reasonable time following notification of said proposal.

Attached for your record is a resolution amending the Sanitation Ordinance to install local review of disposal facility requests.

Thank you for your cooperation on this matter.

Sincerely,

Kenneth R. Thompson
County Manager

KRT/tk

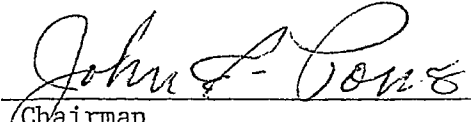
cc: Robert Apple

RESOLUTION TO AMEND SANITATION ORDINANCE"

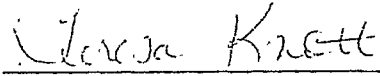
Amend Burke County Sanitation Ordinance by adding the following section:

- 6.7.e. In order to maintain adequate solid waste disposal it is desirable to require review of solid waste disposal facilities proposed in Burke County. The review will require adherence to the latest edition of "Rules and Regulations Providing Standards for Solid Waste Disposal" as prepared by the North Carolina State Board of Health Sanitary Engineering Division or other regulations adopted by the Division. Proposed plans or proposals will be reviewed by the Director of Community Development or his representative. The Board of Commissioners will then consider approval on submitted proposals at the meeting following the completion of review by the Director of Community Development.

This amendment passed this 21st day of August, 1979.


Chairman
Burke County Board of Commissioners

ATTEST:


Clerk



110 WEST WALKER AVENUE
ASHEBORO, N. C. 27203

TELEPHONE (919) 625-6111
P. O. BOX 728

August 7, 1979

Mr. Robert Hill
Hill Associates
118 Kings Highway West
Haddonfield, NJ 08033



Dear Sir:

RE: Wastewater Pretreatment Facility
FMC Line Chain Division
Morganton Plant
MGA Project No. 207143

In our telephone conversation on August 3, 1979, you informed me that Mr. Jim Poland had received word from "someone with the State" that sludge from the above referenced facility could possibly be placed in a local landfill. As I attempted to explain, to my knowledge the State of North Carolina does not have a site for disposal of hazardous wastes.

I followed this subject with a telephone call to Mr. Bill Meyers of the Division of Health Services, Sanitary Engineering Section. Mr. Meyers, as it turns out, was also Mr. Poland's contact with "the State". Mr. Meyers confirmed the fact that North Carolina does not have a site capable of receiving FMC's Morganton plant waste. This sludge will contain toxic metals such as chromium and nickel in detectable amounts thus classifying it as "hazardous". Since this sludge is a by-product of this primary treatment process, any further treatment of the wastewater will not improve the characteristics of this sludge but will produce more sludge.

The closest approved landfill for disposal of your sludge is South Carolina SCA Service in Pinewood, SC (803/452-5003).

According to Mr. Meyers the only other alternative would be on-site disposal. Since I assume you are not familiar with our State's requirements for such an operation, allow me to enlighten you somewhat. The Morganton Plant will first have to have an approved area for such a disposal site. This area must be exempt from laterally moving groundwater, lined to prevent exfiltration (leaching), and protected from vandalism. The containment area must be rezoned as a landfill which requires a public hearing and if it is rezoned, it must be designed and constructed under strict requirements. The sludge will require dewatering and treated by a pug mill, both operations requiring a crew to operate.

Any exfiltration harming surrounding residents would be disastrous as I am sure you can imagine. This alternative would require more time than you have at your disposal and will certainly be more costly.

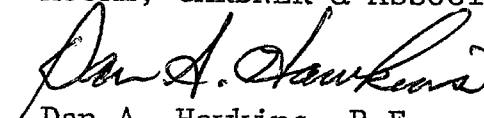
North Carolina is presently seeking a site for a hazardous waste landfill for sludges such as that of FMC, but this site is not expected to be functional until 1981.

Our recommendations for FMC's sludge therefore are to contract for transportation of both the pretreatment unit sludge and iron fillings retrieved from the basin to the South Carolina SCA Services in Pinewood, South Carolina.

I also contacted Ms. Laura Butler of the NC Department of Natural Resources and Community Development and asked her to please expedite her approval of the referenced facility and offered my constant availability and willing assistance should she have any questions during her review. Although her office is swamped with plans requiring her approval, she has informed me that she hopes to complete her review by the end of August. I am forwarding to her office four (4) sets of revised plans as you have requested.

Yours very truly,

MOORE, GARDNER & ASSOCIATES, INC.


Dan A. Hawkins, P.E.

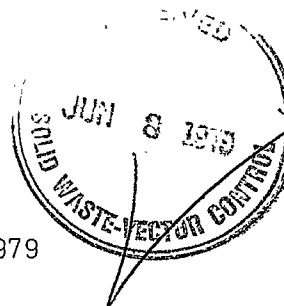
DAH/ddl

cc: Mr. Harry F. Kabernagel, FMC
Mr. James A. Poland, FMC
Mr. Bill Meyers, DHS
Mr. Jim Gill, MGA

South Carolina

Department of Health and Environmental Control

Burke
BOARD
William M. Wilson, Chairman
William C. Moore, Jr., D.M.D., Vice-Chairman
I. DeQuincey Newman, Secretary
Leonard W. Douglas, M.D.
George G. Graham, D.D.S.
J. Lorin Mason, Jr., M.D.
C. Maurice Peterson



COMMISSIONER
Albert G. Randall, M.D., M.P.H.
2600 Bull Street
Columbia, S.C. 29201

June 1, 1979

Mr. B. H. Craft
Inmont Corp.
P.O. Drawer 1297
Morganton, NC 28655

RE: Disposal of aqueous filler at SCSCA Chemical Services, Inc., in Pinewood,
South Carolina -- Sumter County

Dear Mr. Craft:

This office hereby grants approval for disposal of the above referenced waste at the referenced site. Approval is for one-time disposal of 100 (fifty-five) gallon drums.

Transport of this material must be in such a manner to prevent spillage or leakage and must comply with all State Public Service Commission and Department of Transportation regulations. It is the responsibility of Inmont Corp. and the hauler of the waste to ensure that adequate transportation vehicles are used.

The enclosed Manifest Form is to be used in conjunction with the disposal of this waste. Inmont Corp. must fill out completely the appropriate portion of the form and return the pink copy to this office upon shipment of the waste. The yellow and white copies shall be sent with the waste when transported to the disposal facility with the remainder of the form completed by indicated parties. The disposal facility shall verify the accuracy of the Manifest and return the yellow copy to this office. This Division retains the right to sample any waste going to this site to ensure compliance with the Manifest.

Any changes in composition or volume of this waste, or if any problems are encountered during disposal, this authorization will be nullified. Disposal of this waste at other than the requested facility will require prior written approval from this office.

Sincerely,

Earl Williams

Earl M. Williams, Jr., P.E., Manager
Industrial Waste Section
Solid Waste Management Division

/kk

cc: W. E. Stilwell
Capers Dixon
Jerry Perkins

Enclosure

1878 Century of Service 1978

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES

County Burke
SCH No. 78-2330
Date July 18 JHR

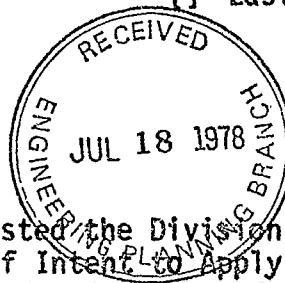
CLEARINGHOUSE REVIEW AND COMMENT REQUEST

TO: ☒ Sanitary Engineering Section
☐ Personal Health Section
☐ Dental Health Section
☐ Epidemiology Section
☐ Other _____

☐ Western Regional Office
☐ North Central Regional Office
☐ South Central Regional Office
☐ Eastern Regional Office

Attn: Maver Cook

FROM: Planning Officer



The Department of Human Resources has requested the Division of Health Services to review the "Notification to Clearinghouse of Intent to Apply for Assistance" as noted above, as to its agreement with the goals and objectives of our agency. In compliance with this request, we are referring a copy of this notification to you for:

☒ REVIEW

☐ INFORMATION

Your response must be received no later than ASAP, if it is to be included in the Agency response.

REVIEWERS' COMMENTS:

☐ No Comment

☐ No Objection

☐ See attached

This proposal is being subjected to the Department of Human Resources "Solid Waste Grant Rules" along with similar applications from Lead Regional Organizations, counties, and cities.

Jerry C. Perkins

REVIEWERS' SIGNATURE

IF YOU REQUIRE EITHER ADDITIONAL TIME OR THE COMPLETE PROJECT APPLICATION, CALL THE PLANNING BRANCH, (919) 829-3372, IMMEDIATELY.

NOTIFICATION TO CLEARINGHOUSE OF INTENT TO APPLY FOR ASSISTANCE

(SEE INSTRUCTIONS ON REVERSE)

78-2330

78-2330

I. Applicant Information

(For State Use)

2. Date Form Completed:

3. Anticipated Submittal Date:

SCH # 78-2330

6-2-78

Applicant Agency:

Burke County

5. Project Director:

Chester R. West

Phone:

433-4021

Address:

P. O. Box 219

City:

Morganton

County:

Burke

Zip:

28655

II. Project Information

Project Title:

Engineering Study

8. Project Location:

Burke County

Project Description: The Burke County Landfill in Morganton, NC has approximately three (3) years life expectancy unless the North Carolina Solid Waste Vector Control Division and the Sedimentation Control Commission allows further use of this site. We must begin our search for a future site due to the time in which it takes to obtain a site and approval for operating a landfill. Assistance is needed to obtain the services of an engineer to perform the necessary planning, site investigation, soils investigation and engineering to receive approval for a landfill. We are proposing the following timetable:

I. Seven (7) months for a study to locate a site. This includes investigation of area requirements (approximately 100 acres), transportation requirements, general topographer and soil conditions.

II. Twelve (12) months to negotiate lease-purchase agreement(s) with property owner(s) and obtain specific topographic information and perform soil borings. Sufficient time must be allowed to enable several agreements to be negotiated as specific topographic and soil information may prove to make an otherwise acceptable site unfeasible.

III. Four (4) months to prepare working plans and specifications.

IV. Six (6) months for approval by the aforementioned state agencies.

V. Six (6) months for mobilization, drainage, and clearing and grubbing of the site to begin operation.

9. Project Also Submitted for Review To:

III. Source of Funding Information JUN 1978

FEDERAL		STATE		LOCAL		OTHER: *	TOTAL:
Grant:	Loan:	Cash:	In-kind:	Cash:	In-kind:		
8925.00	\$	\$	\$	\$	\$2975.00	\$	\$11,900.00

2. Federal Funding Agency Applied To:

EPA

13. Budget Period

From:

4. * Source of Other Federal Funds (Federal Agency)

15. * Source of Other Non-Federal Funds

6. Federal Program Title:

17. Federal Catalog #:

66-504

IV. Environmental Impact Information

8. Environmental Statement or Assessment

CHECK ONE

☐ Completed (Attach EIS or EA Forms)

☐ In Progress (will be submitted on _____)

☐ Not Required

DATE

9. Signature of Chief Executive Official of Applicant Agency

Acting County Manager

OIR #1

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES

CLEARINGHOUSE REVIEW AND COMMENT REQUEST

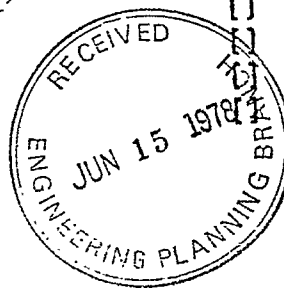
County Benito
SCH No. 78-2271
Date June 5 1978

TO: ☒ Sanitary Engineering Section
☐ Personal Health Section
☐ Dental Health Section
☐ Epidemiology Section
☐ Other _____

☐ Western Regional Office
☐ North Central Regional Office
☒ South Central Regional Office
☐ Eastern Regional Office

Attn: Mr. Cecil Cook

FROM: Planning Officer



The Department of Human Resources has requested the Division of Health Services to review the "Notification to Clearinghouse of Intent to Apply for Assistance" as noted above, as to its agreement with the goals and objectives of our agency. In compliance with this request, we are referring a copy of this notification to you for:

☒ REVIEW

☐ INFORMATION

Your response must be received no later than June 26, if it is to be included in the Agency response.

REVIEWERS' COMMENTS: ☐ No Comment ☒ No Objection ☐ See attached

Concur in stated equipment needs.

James C. Perkins
REVIEWERS' SIGNATURE

IF YOU REQUIRE EITHER ADDITIONAL TIME OR THE COMPLETE PROJECT APPLICATION, CALL THE PLANNING BRANCH, (919) 829-3372, IMMEDIATELY.

PURPOSE:

The purpose of the "Notification to Clearinghouse of INTENT to Apply for Assistance" system is to provide information in the developmental phase of planning by the applicant to any agency which may be affected by the project. Therefore appropriate agencies and the applicant would have the opportunity to maximize all available fiscal and technical resources through early communication and coordination of interests in order to avoid unnecessary overlap which could result in duplication of services, conflict of interests, or gaps in the delivery of services.

REVIEWER RESPONSIBILITY:

The reviewer should assume the responsibility of initiating direct contact with the applicant and/or provider agencies such as local health departments in order to insure that full consideration is given the needs of the project population and is consistent with the goals and objectives of the Division of Health Services.

While the responsibility of the reviewer is not to make a judgement concerning the funding of a project, it is his responsibility to make comments which will emphasize areas of cooperation or reflect any problems which may arise should the project be funded. Recommendations for solutions should be included in the response.

INSTRUCTIONS:

REVIEW: The reviewer should prepare comments in a manner suitable for direct submission to the Department of Human Resources and record them in the space provided on the front of the form. If comments are lengthy enough to require additional pages, please submit them in memorandum form addressed to the Planning Officer.

If the "No Comment" or "No Objection" blocks are checked, only the original DHS Form 2145 need be returned to us. If detailed comments are confined to DHS Form 2145, we will need the original and one copy returned to us. If a memorandum is submitted, we will need the original and one copy of the memorandum along with the DHS Form 2145 returned to us.

INFORMATION: No response is necessary. However, should you elect to comment, please follow the instructions as stated above under REVIEW.

RETENTION:

The Planning Office will retain a copy of DHS Form 2145 and any comments for a period of one (1) year. After that time, the information will be forwarded to Central Files.

I. Applicant Information		3. Anticipated Submittal Date:	
(For State Use)	2. Date Form Completed: May 11, 1978		
SCH # 78-2271			
Applicant Agency: Burke County		5. Project Director: Chester R. West	Phone: 704-433-4021
Address: P. O. Box 219		City: Morganton	County: Burke
			Zip: 28655
II. Project Information			
Project Title: Solid Waste Containers		8. Project Location: Burke County	
Project Description:			

Burke County presently operates a solid waste collection system with 107 green boxes in 21 locations. We are asking for an additional seven (7) boxes to be located at three (3) of these sites. This is to combat to continuous over-run of solid waste at these locations.

1. Project Also Submitted for Review To:

III. Source of Funding Information						
FEDERAL		STATE		LOCAL	OTHER: *	TOTAL:
Grant:	Loan:	Cash:	In-kind:	Cash:	In-kind:	
\$1400	\$	\$	\$	\$ 1400	\$	\$ 2800
2. Federal Funding Agency Applied To: ARC				13. Budget Period From: July 1, 1978 To: July 1, 1979		
14. * Source of Other Federal Funds (Federal Agency)				15. * Source of Other Non-Federal Funds		
6. Federal Program Title:					17. Federal Catalog #: 23.004	

IV. Environmental Impact Information	
3. Environmental Statement or Assessment	CHECK ONE:
<input type="checkbox"/> Completed (Attach EIS or EA Forms)	
<input type="checkbox"/> In Progress (will be submitted on _____)	DATE
<input type="checkbox"/> Not Required	

9. Signature of Chief Executive Official of Applicant Agency
 Acting County Manager

June 1, 1977

Mr. Robert R. Cantine
Burke County Manager
County Courthouse
Morganton, North Carolina 28655

out
Dear Mr. Cantine:

On May 24, 1977 while on a tour of the solid waste disposal sites in Region "E", I visited the two Burke County sites. Mr. Bill Holland and Mr. Elmer Cleveland of the Environmental Protection Agency, Atlanta, Georgia, and Mr. William L. Meyer, District Sanitarian, accompanied me on the tour. Mr. Chester West, County Engineer and Mr. Ralph Vest, Landfill Supervisor were contacted at each of the sites.

The reason for our visit was to evaluate the sites and their needs in reference to a grant request from Region "E" to the Appalachian Regional Commission.

The Burke County landfills are well equipped; the Eastern Burke site is an excellent site while the Morganton site does have some water problems but can be operated as a sanitary landfill. The sites were well planned but the plans are not being followed. The landfill supervisor stated that he had not seen the plans and no one seemed to know where the plans were. The day-to-day operation is poor and daily cover is not applied. In my many years of solid waste management experience, I have never observed in North Carolina or any other state the dump and push type of operation that is used on the Burke site. This type of operation requires more equipment time, cover material, and manpower per ton than is necessary. This type of operation is also reducing the life of the sites.

The night and week-end dumping areas at the gates are in violation of the Division of Health Services Solid Waste Management Rules. They also give a very bad appearance to the sites. I would be glad to meet with you and discuss means of alleviating those dumping areas.

I would also like to call to your attention that due to a very strict requirement on the delivery of plastic bags to the Hickory site, due to the airport, you may be getting quite a large amount of industrial waste from Catawba County.

Mr. Robert R. Cantine
June 1, 1977
Page 2

In conclusion, I see a great need for adequate supervision of the solid waste management program in Burke County. The County is to be congratulated on providing the necessary funds for an adequate program and it is my professional opinion that with better supervision you could get more for your investment.

If there are questions or if Mr. Meyer and I could meet with you and your board to discuss the program, please let me know.

Sincerely,

O. W. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

OWS/tg

cc: Mr. Chester West
Mr. Bill Holland
Mr. William L. Meyer

August 31, 1978

Mr. Ernest E. St. Louis
President
Astro Industries, Incorporated
Post Office Box 1327
Salem Road
Morganton, North Carolina 28655

Dear Mr. St. Louis:

Your letter of August 22, 1978, in reference to the disposal of a product called Nyacol 2034-A in the Burke County Landfill has been received. *DWT/c*

I have discussed the material with our chemist, and we feel that there is no problem with landfilling this material in a sanitary landfill.

This office has no objections to placing the fourteen (14) drums of material in the Burke County Landfill. Due to the dust, we would advise landfilling the material in the drums.

A copy of this letter will be forwarded to the Burke County Engineer, Mr. Chester West. He has the final authority as to whether or not the Burke County Landfill will receive the material even though this office states that we have no objections to placing the material in a sanitary landfill.

Sincerely,

O. W. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

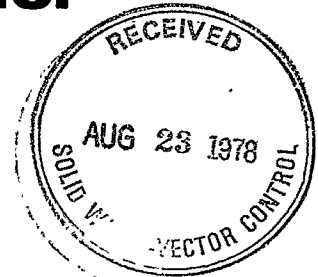
OWS/wss

cc: Mr. William L. Meyer
Mr. Chester West



ASTRO INDUSTRIES, Inc.
CHEMICAL SPECIALTIES

P. O. BOX 1327 SALEM ROAD
MORGANTON, NORTH CAROLINA 28655



August 22, 1978

Mr. O. W. "Bill" Strickland
P. O. Box 2091
Raleigh, North Carolina 27602

Dear Bill:


Per our conversation, we would request permission to dump fourteen (14) drums (55 gallon drums at 550 pounds each) of a product called Nyacol 2034-A in the Burke County landfill.

This product is a colloidal silica solution which has set-up on standing and is no longer a usable product. The chemical nature, of course, makes this a completely inert material (sand).

We would appreciate being authorized to dump this material as soon as possible as it is taking up valuable warehouse space.

Thank you for your cooperation.

Very truly yours,


Ernest E. St. Louis
President

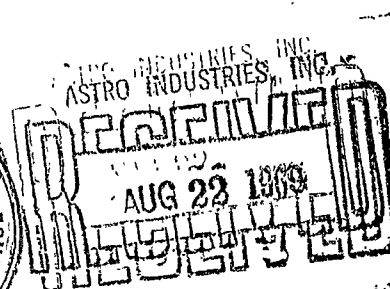
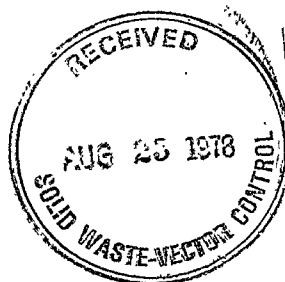
EESL/cps

P. S. A copy of the cover sheet of "Ludox", a competitive product, is enclosed.

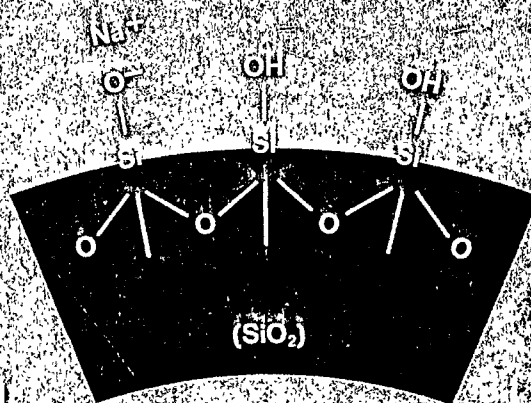
Silica (silicon dioxide)

*Chem. & biologically inert, including colloidal silica gels.
(avoid inhalation of dry powder - sand, or quartz - silicosis)*

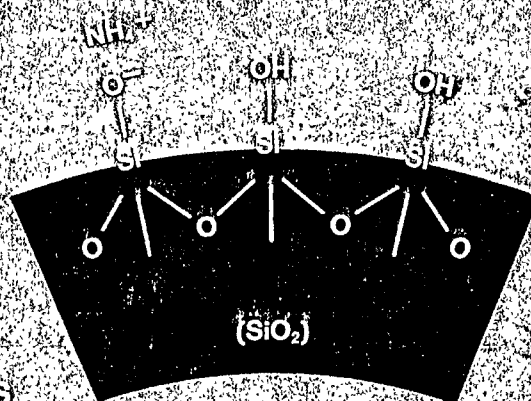
DU PONT LUDOX®



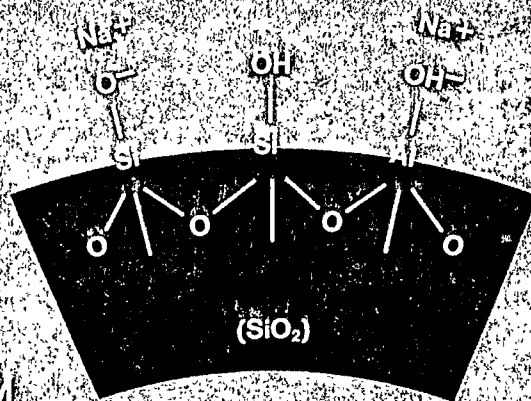
LUDOX® HS, LS, SM, TM



LUDOX® AS



LUDOX® AM



Burke
LRR

May 11, 1977

Memorandum

TO: Mr. Dayne Brown, Head
Radiation Protection Branch
Division of Facility Services
N. C. Department of Human Resources

FROM: Jerry C. Perkins, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

SUBJECT: Section C.304 of the North Carolina Regulations for Protection
Against Radiation

Following our meeting of May 9, 1977, and your request for comments on the subject section, the following information is provided:

- A. Disposal of routine solid waste and the approvals issued for the disposal thereof include consideration of lateral distances to adjacent properties and their respective use. In other words, blowing paper or leachate would be offensive to an adjacent neighbor if allowed to escape from the disposal site. Buffer zones and other site control measures aid in minimizing these obnoxious effects.
- B. Site approval as referenced in Section C.302 includes consideration of any downward movement of water which may originate from ground water sources or by other natural occurrences such as rainfall or the introduction of surface storm water. Plans for operational development require that these possibilities be minimized to prevent water intrusion into the waste deposited.
- C. The ability of the soil to inhibit movement of contaminate materials is also considered for its protective features as it to serves as a barrier shield to aid in the protection of adjacent properties.
- D. It is required that all approved sanitary landfill sites be recorded with the register of deeds of their respective counties to alert future property owners of this former use of the property.

Memo: Mr. Dayne Brown

Page 2

May 11, 1977

It would seem that some of the above considerations may be applicable to Section C.304 of your regulations. As you know, the definition of solid waste does not include any radioactive materials. As was pointed out on May 9 in discussing the April 18, 1977, memorandum concerning disposal of non-radioactive material, this office is interested in receiving further information concerning procedures for declaring formerly contaminated wastes as being non-radioactive.

JCP:bm



STATE OF NORTH CAROLINA
DEPARTMENT OF HUMAN RESOURCES
Division of Facility Services

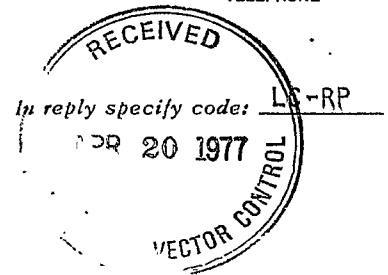
JAMES B. HUNT, JR.
GOVERNOR

P. O. BOX 12200

RALEIGH 27605

I. O. WILKERSON, JR.
DIRECTOR
TELEPHONE

SARAH T. MORROW, M.D., M.P.H.
SECRETARY



M E M O R A N D U M

TO:

Jerry C. Perkins, Head
Solid Waste and Vector Control
Bath Building
306 N. Wilmington Street
Raleigh, North Carolina 27611

FROM:

Cecil B. Brown, Supervisor
Radioactive Materials Unit
Radiation Protection Branch

DATE:

April 18, 1977

REFERENCE:

Grace Hospital, Inc.
Department of Radiology
P. O. Box 130
Morganton, North Carolina 28655

The above named licensee has made application to the Radiation Protection Branch to dispose of waste from their radioactive laboratory through the county landfill. The licensee will hold all material until it has completely decayed, monitor it to assure that it does not contain detectable quantities of radioactive material, remove or deface all labels or decals which have radioactive wording, and package for regular trash disposal.

We have approved the application and will require that the above procedures be followed to assure that no radioactive material above background will be disposed of through the county landfill. We have also informed the licensee of this required approval from your office.

I hope the above method of disposal meets with your approval. If so, you may wish to contact the local landfill authorities and the above named licensee concerning this matter.

CBB:rbj

NORTH CAROLINA REGULATIONS FOR PROTECTION AGAINST RADIATION

NORTH CAROLINA
DEPARTMENT OF HUMAN RESOURCES

PREPARED AND DISTRIBUTED BY

~~THE NORTH CAROLINA STATE BOARD OF HEALTH~~

RALEIGH, NORTH CAROLINA

RADIATION PROTECTION BRANCH
DIVISION OF FACILITY SERVICES
P. O. BOX 12200
RALEIGH, N. C. 27605

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

See Reverse

*THE DEVELOPMENT AND PROCESSING OF THESE REGULATIONS IS IN CONFORMITY WITH G. S. 104C (1959, c. 481) AS AMENDED (1963, c. 1211) AND IS A DUTY OF THE STATE BOARD OF HEALTH IN COMPLIANCE WITH G. S. 130-9 (1957, c. 1357, s. 1)

ADOPTION OF REGULATIONS FOR PROTECTION AGAINST RADIATION IN NORTH CAROLINA
APPROVED BY:

GOVERNOR TERRY SANFORD JUNE 26, 1963

THE NORTH CAROLINA STATE BOARD OF HEALTH JANUARY 9, 1964


GOVERNOR OF NORTH CAROLINA


STATE HEALTH DIRECTOR

APPROVED AMENDMENTS TO
NORTH CAROLINA REGULATIONS FOR PROTECTION AGAINST RADIATION

UNDER PROVISIONS OF SECTION A.7, NORTH CAROLINA REGULATIONS FOR PROTECTION AGAINST RADIATION, EFFECTIVE AUGUST 1, 1964, THE ADOPTION OF CHANGES TO SUCH REGULATIONS BY THE NORTH CAROLINA STATE BOARD OF HEALTH, AS FOLLOWS, TO BE EFFECTIVE JANUARY 1, 1967, WAS APPROVED BY GOVERNOR DAN MOORE DECEMBER 12, 1966, AND WERE ADOPTED BY THE NORTH CAROLINA STATE BOARD OF HEALTH AT ITS SCHEDULED MEETING DECEMBER 13, 1966.


STATE HEALTH DIRECTOR

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inclusive

D-1a to D-7a
inclusive

APPROVED AMENDMENTS TO

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Jacob Koomen

STATE HEALTH DIRECTOR

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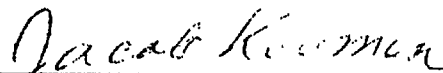
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APPROVED AMENDMENTS

TO

NORTH CAROLINA REGULATIONS FOR PROTECTION AGAINST RADIATION

Under the provisions of General Statute 104C-4, the North Carolina Commission for Health Services, at its scheduled meeting May 3, 1975, adopted the following changes to the North Carolina Regulations for Protection Against Radiation to be effective July 1, 1975. These changes were approved by Governor James E. Holshouser, Jr., May 30, 1975.



Jacob Koomen, Director
Division of Health Services

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B-11a Amended Jan. 1, 1967
B-12a " " "

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B-6b Amended Jan. 1, 1970
B-6c " July 1, 1975

B-6d " " 1975
B-6e " " "

and

B-6f Amended July 1, 1975
B-7a " Jan. 1, 1967

B-11a Amended July 1, 1975
B-11b " " "

and

B-12 Amended July 1, 1975

FOREWORD

The Public Health Law of North Carolina has established the general duty of the North Carolina State Board of Health to adopt, amend, and rescind rules and regulations to protect and promote the public health, and also gives the Board the power to do so. The North Carolina General Assembly has specifically authorized the Board to adopt reasonable rules and regulations relating to the use, storage, transportation and disposal of radiation, radiation machines and radioactive materials (radiation sources) so as to provide protection against hazards from radioactivity and ionizing radiation, and so as to insure safety to all persons at, or in the vicinity of, the place of use, storage, transportation or disposal thereof.

These regulations are compatible with detailed suggestions made by the United States Atomic Energy Commission, the United States Public Health Service, and the Council of State Governments, September, 1962 1/. They are compatible also with applicable statutory and regulatory authorities established by the State of North Carolina. They are compatible with Public Law 86-373, September 23, 1959, with regulations issued under provisions of the Atomic Energy Act of 1954, as amended, and with National Bureau of Standards Handbook 76, Medical X-Ray Protection up to Three Million Volts (February 9, 1961). In general, therefore, these regulations reflect thoroughly the current standards and practices of unquestioned technical as well as legal authorities in the field of public health protection 2/.

These regulations are designed to identify clearly and exactly what is required of all subject thereto in order for them as well as the Board to meet their respective responsibilities effectively yet reasonably. At the same time the regulations indicate exactly who shall be subject to their provisions. The regulations include no guidance as to how to comply with the prescribed standards and requirements. In an occasional instance where a person is subject to the regulations but has not learned how to comply, or why he should comply, sufficient technical, consulting, and servicing resources exist within the State to provide him with the necessary and competent assistance.

Primary responsibility for providing protection of all persons at all times against hazard from radioactivity and ionizing radiation at, or in the vicinity of, the place of use, storage, transportation or disposal thereof is established herein for (1) the licensees of specified radioactive materials, (2) the registrants of other radiation sources, and (3) the registrants of equipment servicing and services. In other words major responsibility for radiation protection originates at the source.

RADIATION PROTECTION BRANCH
DIVISION OF FACILITY SERVICES
P. O. BOX 12200
RALEIGH, N. C. 27605

1/ An original copy is available for inspection during regular office hours at the ~~State Board of Health, Raleigh, North Carolina~~; Addendum 1, April, 1966.

2/ The detailed history of development of these regulations, as well as detailed description of the State's Radiological Health Program and its staff, training, qualifications, and scientific equipment, are available to any person requesting it for legitimate use.

Primary responsibilities for specified inspections, tests, and surveys also are defined for such licensees and registrants, and also predominantly apply at the source concerned.

The State Board of Health, as authorized by Statute and within its limited resources, will provide advisory inspection or survey services, upon request, to assist licensees and registrants who desire assistance in providing an effective protection program.

Periodic inspections, tests, and surveys through visits by authorized representatives of the State Board of Health to licensees are necessary in order for the State program to be compatible with that of the United States Atomic Energy Commission. This is required by Federal and State legislation. Such State representative visits are not in addition to, nor would they differ from periods and types of Atomic Energy Commission inspections.

No repeated or periodic inspection, test, or survey visit by authorized representatives of the State Board of Health to registrants of sources or registrants of equipment servicing and services are planned. None are deemed necessary by the Board to attain an effective protection program. However, this should not be construed to interfere with, nor does this preclude, inspecting or other visits by representatives of other agencies in the authorized discharge of their respective responsibilities, while at the same time all concerned shall comply with these regulations.

Necessary personal protection of the public under these regulations, therefore, will result from (1) maximum understanding, cooperation and mutual assistance between licensees, registrants, and governmental agency representatives; (2) maximum utilization of the existing and organized programs and agencies and institutions in the State; (3) maximum education and assistance by and to the professions, the administrators and executives, and their staffs, and the public; (4) minimum burden and interruption to regular and beneficial activities by all persons concerned with their necessary and authorized occupations; and (5) minimum enforcing or policing, and enjoining, actions, and only to the extent essential to an effective radiation protection program.

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NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION

PART A
GENERAL PROVISIONS

EFFECTIVE DATE AUGUST 1, 1964

FIRST REVISION JANUARY 1, 1967
(see list of amendments)

GENERAL PROVISIONS

Sec. A.1 Scope. (a) Except as otherwise specifically provided, these regulations apply to all persons who receive, possess, use, transfer, own or acquire any source of radiation within the State of North Carolina provided; however, that nothing in these regulations shall apply to any person to the extent such person is subject to regulation by the United States Atomic Energy Commission; and, nothing in these regulations shall apply to x-ray facilities in or as a part of any hospital or medical facility subject to provisions of law relating to the licensing thereof by the North Carolina Medical Care Commission (G.S. 131-126.3),^{/1}

(b) Nothing in these regulations shall relieve any person of responsibility for complying with pertinent laws and rules and regulations administered and promulgated other than by the Agency (defined below).

(c) Nothing in Part C of these regulations shall be interpreted as limiting the intentional exposure of patients to radiation for the purposes of medical diagnosis and therapy.

Sec. A.2 Definitions. (a) As used in these regulations:

(1) "Act" means Chapter 481, Session Laws of 1959 (G.S. 104C), entitled North Carolina Atomic Energy, Radioactivity and Ionizing Radiation Law, as amended.

(2) "Agency" means the North Carolina State Board of Health.

(3) "Agreement State" means any State with which the United States Atomic Energy Commission has entered into an effective agreement under Section 274 b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

(4) "Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, mists, vapors, or gases.

(5) "Authorized representative" means an employee of the Agency, or an individual outside the Agency when the latter is specifically so designated by the Agency (see Section A.11).

(6) "Byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material.

(7) "Calendar quarter" means any period determined according to either of the following subdivisions:

^{/1/} Attention is directed to the fact that regulation by any State of source material, byproduct material, and special nuclear material in quantities not sufficient to form a critical mass is subject to the provisions of agreement made between such State and the United States Atomic Energy Commission under provisions of Public Law 86-373, as amended, and to Part 150 of the Commission's regulations (10 C.F.R. Part 150).

(i) The first period of any year may begin on any date in January; provided that the second, third and fourth periods accordingly begin on the same date in April, July, and October, respectively and that the fourth period extend into January of the succeeding year, if necessary to complete a three-month quarter. During the first year of use of this method of determination by a licensee or registrant, the first period for that year shall also include any additional days in January preceding the starting date for the first period.

(ii) The first period in a calendar year of 13 complete, consecutive calendar weeks; the second period in a calendar year of 13 complete, consecutive calendar weeks; the third period in a calendar year of 13 complete, consecutive calendar weeks; the fourth period in a calendar year of 13 complete, consecutive calendar weeks. Alternatively, the four periods may consist of the first 14 complete, consecutive calendar weeks; the next 12 complete, consecutive calendar weeks; the next 14 complete, consecutive calendar weeks; and the last 12 complete, consecutive calendar weeks. If at the end of a calendar year there are any days not falling within a complete calendar week of that year, such days shall be included (for purposes of this part) within the last complete calendar week of that year. If at the beginning of any calendar year there are days not falling within a complete calendar week of that year, such days shall be included (for purposes of these regulations) within the last complete calendar year of the previous year.

No licensee or registrant shall change the method observed by him of determining calendar quarters for purposes of these regulations except at the beginning of a calendar year.

(8) "Curie" means that quantity of radioactive material which decays at the rate of 3.7×10^{10} disintegrations per second or 2.2×10^{12} disintegrations per minute, except as provided in Section A.4(c). A commonly used submultiple of the curie is the microcurie (uc). One uc = 0.000001c = 3.7×10^4 dps = 2.2×10^6 dpm.

(9) "Equipment servicing and services" means the installation, rebuilding, conversion, repair, inspection, testing, survey, and/or calibration of equipment which can affect the compliance with these regulations by a licensee or registrant.

(10) "Human use" means the internal or external administration of radiation or radioactive materials to human beings.

(11) "Individual" means any human being.

(12) "License" except where otherwise specified, means a license issued pursuant to Part B.

(13) "Occupational dose" means exposure of an individual to radiation (i) in a restricted area; or (ii) in the course of or due to employment in which the individual's duties involve exposure to radiation; provided, that occupational dose shall not be deemed to include any exposure of an individual to radiation for the purpose of medical diagnosis or medical therapy of such individual.

(14) "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other State or political subdivision or agency thereof, and any legal successor, representative, agent or agency of the foregoing, other than the United States Atomic Energy Commission, or any successor thereto, and other than Federal Government Agencies licensed by the United States Atomic Energy Commission, or any successor thereto.

(15) "Pharmacist" means an individual currently licensed by this State and authorized to engage in the practice of pharmacy.

(16) "Physician" means an individual currently licensed to practice medicine in this State.

(17) "Radiation" means any or all of the following: gamma rays and X-rays, alpha and beta particles, high-speed electrons, neutrons, high-speed protons, and other nuclear or atomic particles; but not sound or radiowaves, or visible, infrared or ultraviolet light.

(18) "Radiation machine" means any device capable of producing radiation except devices which produce radiation only from radioactive material.

(19) "Radioactive material" means any material, solid, liquid, or gas, which emits radiation spontaneously.

(20) "Research and development" means: (1) theoretical analysis, exploration, or experimentation; or (2) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes. Research and development does not include the internal or external administration of radiation or radioactive material to human beings.

(21) "Restricted area" means any area access to which is controlled by the licensee or registrant for purposes of protection of individuals from exposure to radiation and radioactive materials. "Restricted area" shall not include any areas used for residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

(22) "Roentgen" means the quantity of x- or gamma radiation such that the associated corpuscular emission per 0.001293 gram of air produces, in air, ions carrying 1 electrostatic unit of electricity of either sign.

(23) "Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

(24) "Source material" means: (1) uranium or thorium, or any combination thereof, in any physical or chemical form, or (2) ores which contain by weight one-twentieth of one per cent (0.05 per cent) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

(25) "Source of radiation" means any radioactive material, or any device or equipment emitting or capable of producing radiation.

(26) "Special nuclear material in quantities not sufficient to form a critical mass" means uranium enriched in the isotope U-235 in quantities not exceeding 350 grams of contained U-235; uranium-233 in quantities not exceeding 200 grams; plutonium in quantities not exceeding 200 grams; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material.

The sum of such ratios for all of the kinds of special nuclear material in combination shall not exceed "1" (i.e., unity). For example, the following quantities in combination would not exceed the limitation and are within the formula, as follows:

$$\frac{175 \text{ (grams contained U-235)}}{350} + \frac{50 \text{ (grams U-233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} = 1.$$

(27) "These regulations" means Parts A,B,C,D,E, and F.

(28) "Unrefined and unprocessed ore" means ore in its natural form prior to any processing, such as grinding, roasting, beneficiating, or refining.

(29) "Unrestricted area" means any area access to which is not controlled by the licensee or registrant for purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.

(b) Definitions of certain other words and phrases as used in these regulations are set forth in other sections, relating to:

- (1) "Dose to the whole body" defined in Section C.101;
- (2) "Personnel monitoring equipment" defined in Section C.202;
- (3) "Radiation area" and "high radiation area" defined in Section C.202;
- (4) "Survey" defined in Section C.201;
- (5) Units of measurement of dose (rad, rem) defined in Section A.3;
- (6) Units of measurement of radioactivity defined in Section A.4;
- (7) Use of x-rays in the healing arts, terms defined in Section E.2.

Sec. A.3 Units of Radiation Dose. (a) "Dose" is the quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body. When these regulations specify a dose during a period of time, the dose means the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time. Several different units of dose are in current use. Definitions of units as used in these regulations are set forth in paragraphs (b) and (c) of this section.

(b) The rad is a measure of the dose of any radiation to body tissues in terms of the energy absorbed per unit mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue. (One millirad (mrad) = 0.001 rad.)

(c) The rem is a measure of the dose of any radiation to body tissue in terms of its estimated biological effect relative to a dose of one roentgen (r) of X-rays. (One millirem (mrem) = 0.001 rem). The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions of irradiation. For the purposes of these regulations, any of the following is considered to be equivalent to a dose of one rem:

- (1) A dose of 1 r due to X-, or gamma radiation;
- (2) A dose of 1 rad due to X-, gamma, or beta radiation;
- (3) A dose of 0.1 rad due to neutrons or high energy protons;
- (4) A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye.

If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, as provided in sub-paragraph (3) of this paragraph, one rem of neutron radiation may, for purposes of these regulations, be assumed to be equivalent to 14 million neutrons per square centimeter incident upon the body; or, if there exists sufficient information to estimate with reasonable accuracy the approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to one rem may be estimated from the following table:

Neutron energy (Mev)	Neutron Flux Dose Equivalents	
	Number of neutrons per square centimeter equivalent to a dose of 1 rem (neutrons/cm ²)	Average flux to deliver 100 millirem in 40 hrs. (neutrons/cm ² per sec.)
Thermal	970 x 10 ⁶	670
0.0001	720 x 10 ⁶	500
0.005	820 x 10 ⁶	570
0.02	400 x 10 ⁶	280
0.1	120 x 10 ⁶	80
0.5	43 x 10 ⁶	30
1.0	26 x 10 ⁶	18
2.5	29 x 10 ⁶	20
5.0	26 x 10 ⁶	18
7.5	24 x 10 ⁶	17
10.0	24 x 10 ⁶	17
10 to 30	14 x 10 ⁶	10

(d) For determining the doses specified in Sections C.101 and C.104(a), a dose from X- or gamma rays up to 3 Mev, may be assumed to be equivalent to the exposure measured by a properly calibrated appropriate instrument in air at or near the body surface in the region of highest dose rate.

Sec. A.4 Units of Radioactivity. (a) Radioactivity shall be measured in terms of curies.

(b) For purposes of these regulations, it may be assumed that the daughter activity concentrations in the following table are equivalent to an air concentration of 10⁻⁷ microcuries of Radon-222 per milliliter of air in equilibrium with the daughters RaA, RaB, RaC, and RaC':

Maximum Time Between Collection and Meas- urement (hours) /3/	Alpha-Emitting Daughter Activity Collected Per Milliliter of Air	
	Microcuries/cc	Total alpha disintegrations per minute per cc
0.5	7.2×10^{-8}	0.16
1	4.5×10^{-8}	0.10
2	1.3×10^{-8}	0.028
3	0.3×10^{-8}	0.0072

(c) Natural Uranium and Natural Thorium

(1) For the purpose of these regulations, one curie of natural uranium (U-natural in Appendix A or B of Part C) means the sum of 3.7×10^{10} disintegrations per second from U-238 plus 3.7×10^{10} dps from U-234 plus 9×10^8 dps from U-235. Also, a curie of natural thorium (Th-natural in Appendix A or B of Part C) means the sum of 3.7×10^{10} dps from Th-232 plus 3.7×10^{10} dps from Th-228.

(2) For the purpose of these regulations, one curie of natural uranium (U-natural in Appendix A or B of Part C) is equivalent to 3,000 kilograms, or 6,615 pounds of natural uranium; and one curie of natural thorium (Th-natural in Appendix A or B of Part C) is equivalent to 9,000 kilograms or 19,850 pounds of natural thorium.

Sec. 1.5 Exemptions. The Agency may, upon application therefor or upon its own initiative, grant such exemptions or exceptions from the requirements of these regulations as it determines are authorized by law and will not result in undue hazard to public health and safety or property.

Sec. 1.6 Additional Requirements. The Agency may, by rule, regulation, or order, when not in conflict with any law, impose upon any licensee or registrant such requirements in addition to those established in these regulations as it deems appropriate or necessary to minimize danger to public health and safety or property.

Sec. 1.7 Amendment, Deletion, Addition to Regulations. The Agency shall make such authorized and reasonable changes in these regulations as will provide an effective protection program.

Sec. 1.8 Copies of Law and Regulations Available. The Agency shall furnish, upon request, reasonable quantities of copies of the Act and of these regulations to all persons having legitimate use thereof.

Sec. 1.9 Violations. An injunction or other court order may be obtained prohibiting any violation of any provision of the Act or any regulation or order issued thereunder. Any person who willfully violates any provision of the Act or any regulation or order issued thereunder may be guilty of a misdemeanor and, upon conviction, may be punished as provided by law.

/3/ The duration of sample collection and the duration of measurement should be sufficiently short compared to the time between collection and measurement, as not to have a statistically significant effect upon the results.

Sec. A.10 Communications. All communications and reports concerning these regulations, and applications filed thereunder, should be addressed to the Agency at its office located at Raleigh, North Carolina.

Sec. A.11 Designation of Authorized Representative of the Agency. (a) When an employee of the Agency is qualified and is specifically designated by the Agency, such employee thereof shall be an authorized representative of the Agency to conduct inspections, or tests, or surveys.

(b) When a public employee of other than the Agency is determined by the Agency to be qualified, the Agency may designate such employee as an authorized representative of the Agency to conduct specified inspections, or tests, or surveys.

Sec. A.12 Effective Dates. The effective dates of these regulations, and all amendments thereto, shall be established and published by the Agency subject to the provisions of applicable Statutes.

**NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION**

**PART B
LICENSING AND REGISTRATION**

**EFFECTIVE DATE AUGUST 1, 1964
FIRST REVISION JANUARY 1, 1967
(see list of amendments)
SECOND REVISION JANUARY 1, 1970
(see list of amendments)**

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

PURPOSE AND SCOPE

Sec. B.1 Purpose. This part provides for the licensing and registration of sources of radiation.

Sec. B.2 Scope. No person shall receive, possess, use, transfer, own, or acquire radioactive material except as authorized in a specific or general license issued pursuant to this part or as otherwise provided in this part. All other sources of radiation, unless exempt from this part under Sections B.3, B.4, B.5, B.6, B.7, or B.8 shall be registered with the Agency in accordance with the requirements of Section B.8 of this part.

EXEMPTIONS

Sec. B.3 Source Material. (a) Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers source material in any chemical mixture, compound, solution, or alloy in which the source material is by weight less than 1/20 of 1 percent (0.05 percent) of the mixture, compound, solution, or alloy.

(b) Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers unrefined and unprocessed ore containing source material; provided that, except as authorized in a specific license, such person shall not refine or process such ore.

(c) Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers:

(1) Any quantities of thorium contained in: (i) incandescent gas mantles; (ii) vacuum tubes; (iii) welding rods; (iv) electric lamps for illuminating purposes provided that each lamp does not contain more than 50 milligrams of thorium; (v) germicidal lamps, sunlamps, and lamps for outdoor or industrial lighting provided that each lamp does not contain more than 2 grams of thorium; or (vi) rare earth metals and compounds, mixtures, and products containing not more than 0.25 percent by weight thorium, uranium, or any combination of these;

(2) Source material contained in the following products: (i) glazed ceramic tableware, provided that the glaze contains not more than 20 percent source material; (ii) glassware, glass enamel and glass enamel frit containing not more than 10 percent by weight source material; but not including commercially manufactured glass brick, pane glass, ceramic tile, or other glass, glass enamel or ceramic used in construction;

(3) Photographic film, negatives, and prints containing uranium or thorium;

(4) Any finished product or part fabricated of, or containing, tungsten or magnesium-thorium alloys; provided that the thorium content of the alloy does not exceed 4 percent by weight and that the exemption contained in this subparagraph shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such product or part;

(5) Uranium contained in counterweights installed in aircraft, rockets, projectiles or missiles, or stored or handled in connection with installation or removal of such counterweights when: (i) the counterweights are manufactured in accordance with the specification contained in a specific license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any Agreement State authorizing distribution by the licensee pursuant to this subparagraph or equivalent provisions of the regulations of the AEC or any Agreement State: (ii) each such counterweight has been impressed with the following legend clearly legible through any plating or other covering, which states, "CAUTION - RADIOACTIVE MATERIAL - URANIUM"; and (iii) the plating or other covering has not been removed or penetrated.

(6) Uranium used as shielding constituting part of any shipping container which is conspicuously and legibly impressed with the legend "CAUTION -RADIOACTIVE SHIELDING - URANIUM" and which meets the specifications for containers for radioactive materials prescribed by Section 178.250, Specification 55, Part 178, of the regulations published by the U. S. Department of Transportation (49) C.F.R. 178.250).

(7) Thorium contained in finished optical lenses, provided that each lens does not contain more than 30 percent by weight of thorium; and that the exemption contained in this subparagraph shall not be deemed to authorize either:

(i) The shaping, grinding, or polishing of such lens or manufacturing processes other than the assembly of such lens into optical systems and devices without any alteration of the lens; or

(ii) The receipt, possession, use, or transfer, or thorium contained in contact lenses, or in spectacles, or in eye pieces in binoculars or other optical instruments.

(8) Uranium contained in detector heads for use in fire detection units, provided that each detector head contains not more than 0.005 microcurie or uranium.

(9) Thorium contained in any finished aircraft engine part containing nickel-thoria alloy, provided that:

(i) The thorium is dispersed in the nickel-thoria alloy in the form of finely divided thoria (thorium dioxide); and

(ii) The thorium content in the nickel-thoria alloy does not exceed 4 percent by weight.

(d) The exemptions in paragraph (c) do not authorize the manufacture of any of the products described.

Sec. B.4 Radioactive Materials. (a) Exempt Concentrations. Except as provided in Section B.4(a)(1), any person is exempt from this part to the extent that such person receives, possesses, uses, transfers, owns, or acquires products or materials containing radioactive material in concentrations not in excess of those listed in Schedule C.

(1) No person may introduce radioactive material into a product or material knowing or having reason to believe that it will be transferred to persons exempt under Section B.4(a) or equivalent regulations of the U. S. Atomic Energy Commission or any Agreement State, except in accordance with a license issued pursuant to Section B.26(h) or the general license provided in Section B.90 of this part.

(b) Certain items containing tritium, promethium 147 or radium. Except for persons who apply tritium, promethium 147 or radium to, or persons who incorporate tritium, promethium 147 or radium into, the following products, any person is exempt from these regulations to the extent that he receives, possesses, uses, transfers, owns or acquires the following products:/1/

(1) Timepieces or hands or dials containing radium or not more than the following specified quantities of radioactive material and not exceeding the following specified levels of radiation:

- (i) 25 millicuries of tritium per timepiece;
- (ii) 5 millicuries of tritium per hand;
- (iii) 15 millicuries of tritium per dial (bezels when used shall be considered as part of the dial);
- (iv) 100 microcuries of promethium 147 per watch or 200 microcuries of promethium 147 per any other timepiece;
- (v) 20 microcuries of promethium 147 per watch hand or 40 microcuries of promethium 147 per other timepiece hand;
- (vi) 60 microcuries of promethium 147 per watch dial or 120 microcuries of promethium 147 per other timepiece dial (bezels when used shall be considered as part of the dial);
- (vii) The levels of radiation from hands and dials containing promethium 147 will not exceed, when measured through 50 milligrams per square centimeter of absorber: (a) For wrist watches, 0.1 millirad per hour at 10 centimeters from any surface; (b) For pocket watches, 0.1 millirad per hour at 1 centimeter from any surface; (c) For any other timepiece, 0.2 millirad per hour at 10 centimeters from any surface.

(2) Lock illuminators containing not more than 15 millicuries of tritium or not more than 2 millicuries of promethium 147 installed in automobile locks. The levels of radiation from each lock illuminator containing promethium 147 will not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 50 milligrams per square centimeter of absorber.

(3) Balances of precision containing not more than 1 millicurie of tritium per balance or not more than 0.5 millicurie of tritium per balance part.

(4) Automobile shift quadrants containing not more than 25 millicuries of tritium.

(5) Marine compasses containing not more than 750 millicuries of tritium gas and other marine navigational instruments containing not more than 250 millicuries of tritium gas.

/1/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source, byproduct, or special nuclear material, intended for use by the general public may be obtained only from the U. S. Atomic Energy Commission, Washington, D.C. 20545

(6) Thermostat dials and pointers containing not more than 25 millicuries of tritium per thermostat.

(7) Glow lamps containing not more than 10 microcuries of tritium per lamp.

(8) Spark gap tubes containing not more than 30 microcuries of promethium 147. The levels of radiation from each spark gap tube containing promethium 147 will not exceed 0.5 millirad per hour at one centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.

(c) Resins containing scandium 46 and designed for sand consolidation in oil wells. Any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns or acquires synthetic plastic resins containing scandium 46 which are designed for sand consolidation in oil wells. Such resins shall have been manufactured or imported in accordance with a specific license issued by the U. S. Atomic Energy Commission, or shall have been manufactured in accordance with the specifications contained in a specific license or equivalent licensing document issued by the Agency or any Agreement State to the manufacturer of such resins pursuant to licensing requirements equivalent to those in Section 32.16 and 32.17 of 10 CFR Part 32 of the regulations of the Atomic Energy Commission. This exemption does not authorize the manufacture of any resins containing scandium 46.

Sec. B.5 Carriers. Common and contract carriers operating within this State are exempt from this Part to the extent that they transport or store sources of radiation in the regular course of their carriage for another or storage incident thereto, provided that in the regular course of carriage wholly within this State or storage incident thereto such carriers shall comply with all requirements of the rules and regulations of the U. S. Department of Transportation to the same extent as if the transportation were subject to the rules and regulations of the U. S. Department of Transportation./1/

Sec. B.6 U. S. Atomic Energy Commission Contractors. Any U. S. Atomic Energy Commission contractor or subcontractor of the following categories operating within this State is exempt from this part to the extent that such contractor or subcontractor under his contract receives, possesses, uses, transfers, owns, or acquires sources of radiation:

(a) Prime contractors performing work for the AEC at U. S. Government-owned or controlled sites;

(b) Prime contractors performing research in, or development, manufacture, storage, testing or transportation of, atomic weapons or components thereof;

(c) Prime contractors using or operating nuclear reactors or other nuclear devices in a U. S. Government-owned vehicle or vessel; and

(d) Any other prime contractor or subcontractor when the State and the AEC jointly determine (i) that, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety and (ii) that, the exemption of such contractor or subcontractor is otherwise appropriate.

/1/ Attention is directed to the provisions of Section B.100.

Sec. B.7 Other Exemptions. The following machines and equipment are exempt from this part:

(a) Domestic television receivers, providing the dose rate at 5 cm from any outer surface is less than 0.5 mrem per hour.

(b) Other electrical equipment that produces radiation incidental to its operation for other purposes, providing the dose rate to the whole body at the point of nearest approach to such equipment when any external shielding is removed does not exceed 0.5 rem per year. The production testing or factory servicing of such equipment shall not be exempt.

(c) Radiation-producing machines while in transit or storage incident thereto.

LICENSES

Sec. B.20 Types of Licenses. Licenses for radioactive materials are of two types: general and specific. General licenses provided in this part are effective without the filing of applications with the Agency, the United States Atomic Energy Commission, or any Agreement State, or the issuance of licensing documents to particular persons. Specific licenses are issued to named persons upon applications filed pursuant to this part.

Sec. B.21 General Licenses - Source Material. (a) A general license is hereby issued authorizing use and transfer of not more than fifteen (15) pounds of source material at any one time by persons in the following categories:

(1) Pharmacists using the source material solely for the compounding of medicinals;

(2) Physicians and dentists using the source material for medicinal purposes;

(3) Persons receiving possession of source material from pharmacists and physicians in the form of medicinals or drugs;

(4) Commercial and industrial firms, and research, educational, and medical institutions for research, development, educational, or commercial purposes;

And provided, that no such person shall, pursuant to this general license receive more than a total of 150 pounds of source material in any one calendar year.

(b) Persons who receive, possess, use, or transfer source material pursuant to the general license issued in paragraph (a) of this section are exempt from the provisions of Part C of these regulations to the extent that such receipt, possession, use, or transfer is within the terms of such general license; provided, however, that this exemption shall not be deemed to apply to any such person who is also in possession of source material under a specific license issued pursuant to this part.

(c) A general license is hereby issued authorizing the receipt of title to source material without regard to quantity. The general license under this paragraph does not authorize any person to receive, possess, use, or transfer source material.

Sec. B.22 General Licenses*- Radioactive Material Other than Source Material.

(a) Scheduled Items and Generally Licensed Quantities. A general license is hereby issued:

(1) To transfer, receive, acquire, own, possess, and use radioactive material incorporated in a device or equipment which is listed in Schedule A and has been manufactured pursuant to a specific license or equivalent licensing

* Different general licenses are issued in the section, each of which has its own specific conditions and requirements.

document, issued by the Agency, the U. S. Atomic Energy Commission, or any Agreement State, and authorizing distribution under the general license of this subparagraph or its equivalent;

(2) To transfer, receive, acquire, own, possess, and use quantities of radioactive material listed in Schedule B, provided that no person shall at any one time possess or use, pursuant to the general licensing provisions of this subparagraph, more than a total of ten such scheduled quantities.

(b) The general license provided in paragraph (a) is subject to the provisions of Sections A.6, A.7, A.8, B.4(a)(1), B.31, B.40, B.50, B.70, B.71, B.72, B.100 and Part C/3/ of these regulations. In addition, persons who transfer, receive, acquire, own, possess, or use scheduled items or quantities of radioactive material pursuant to the general licenses provided in paragraph (a) of this section:

(1) Shall not effect an increase in the radioactivity of said scheduled items or quantities by adding other radioactive material thereto, by combining radioactive material from two or more such items or quantities, or by altering them in any other manner so as to increase thereby the rate of radiation therefrom;

(2) Shall not administer externally or internally, or direct the administration of, said scheduled items or quantities or any part thereof to a human being for any purpose, including, but not limited to, diagnostic, therapeutic, and research purposes;

(3) Shall not add, or direct the addition of, said scheduled items or quantities or any part thereof to any food, beverage, cosmetic, drug, or other product designed for ingestion or inhalation by, or application to, a human being;

(4) Shall not include said scheduled items or quantities or any part thereof in any device, instrument, or apparatus (including component parts and accessories thereto) intended for use in diagnosis, treatment, or prevention of disease in human beings or animals or otherwise intended to affect the structure or any function of the body of human beings or animals.

(c) Certain Measuring, Gauging or Controlling Devices.

(1) A general license is hereby issued to own, receive, acquire, possess, and use radioactive material when contained in devices designed and manufactured for the purpose of detecting, measuring, gauging, or controlling thickness, density, level interface location, radiation, leakage, or qualitative or quantitative chemical composition, or for producing light or an ionized atmosphere, when such devices are manufactured in accordance with the specifications contained in a specific license or equivalent licensing document issued to the supplier pursuant to Section B.26(e) or its equivalent by the Agency, the U. S. Atomic Energy Commission, or any Agreement State, and authorizing distribution under the general license of this subparagraph or its equivalent; provided, that:

(i) Such devices are labeled in accordance with the provisions of the specific license or equivalent licensing document which authorizes the distribution of the devices;

/3/ Attention is directed particularly to the provisions of Part C of these regulations which relate to the labeling of containers.

(ii) Such devices bear a label containing the following or a substantially similar statement which contains the information called for in the following statement:

The receipt, possession, use, and transfer of this device, Model _____, Serial No. _____, are subject to a general license or the equivalent and the regulations of the U. S. Atomic Energy Commission or of a State with which the Atomic Energy Commission has entered into an agreement for the exercise of regulatory authority. Removal of this label is prohibited.

CAUTION -- RADIOACTIVE MATERIAL

(Name of Supplier)

NOTE: The model, serial number, and name of supplier may be omitted from this label provided they are elsewhere specified in labeling affixed to the device.

(iii) Such devices are installed on the premises of the general licensee by a person authorized to install such devices under a specific license or equivalent licensing document issued to the installer by the Agency, the U. S. Atomic Energy Commission, or any agreement state, if a label affixed to the device at the time of receipt states that installation by a specific licensee is required. The requirement of this paragraph does not apply while devices are held in storage in the original shipping container pending installation by a specific licensee.

(2) Persons who own, receive, acquire, possess, or use a device pursuant to the general license contained in subparagraph (1) of this paragraph:

(i) Shall not transfer, abandon, or dispose of the device, except by transfer to a person duly authorized to receive such device by a specific license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any agreement state, and shall furnish to the Agency, within 30 days after any transfer, a report containing the manufacturer of the device, the type of device, the manufacturer's serial number of the device, and the name and address of the person receiving the device;

(ii) Shall assure that all labels affixed to the device at the time of receipt and bearing the statement, "Removal of this label is prohibited" are maintained thereon and shall comply with all instructions contained in such labels;

(iii) Shall have the device tested for leakage of radioactive material and proper operation of the on-off mechanism and indicator, if any, at the time of installation of the device or replacement of the radioactive material on the premises of the general licensee and thereafter at no longer than six-month intervals or at such longer intervals not to exceed three years as are specified on the label required by subparagraph (c)(1)(i) of this section; provided, that devices containing only tritium need not be tested for any purpose, and that devices containing only krypton need not be tested for leakage;

(iv) Shall have the tests required by subdivision (iii) of this subparagraph and all other services involving the radioactive material, its shielding and containment, performed by the supplier or other person duly authorized by a specific license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any agreement state, to manufacture, install, or service such devices;

(v) Shall, within 30 days after the occurrence of a failure of or damage to the shielding of the radioactive material or the on-off mechanism or indicator or upon the detection of 0.005 microcurie or more of removable radioactive material, furnish to the Agency a report containing the name of the manufacturer of the device, the type of device, the manufacturer's serial number of the device and a brief description of the event and the remedial action taken; and shall maintain records of all tests performed on the devices as required under this section, including the dates and results of the tests and the names of the persons conducting the tests;

(vi) Shall, upon the occurrence of a failure of or damage to, or any indication of the possible failure of or damage to, the shielding or containment of the radioactive material or the on-off mechanism or indicator, immediately suspend operation of the device, until it has been repaired by a person holding a specific license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any agreement state, to manufacture, install, or service such devices, or disposed of by transfer to a person holding a specific

license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any Agreement State to receive the radioactive material contained in the device.

(vii) Shall be exempt from the requirements of Part C of these regulations, except that such persons shall comply with the provisions of Sections C.402 and C.403; and

(viii) Shall within 10 days after the receipt of the device notify the Agency of the type of device and the name and address of the supplier.

(3) The general license provided in subparagraph (1) of this paragraph is subject to the provisions of Sections A.6, A.7, A.8, B.31, B.40, B.50, B.70, B.71, B.72 and B.100.

(d) Luminous Safety Devices for Aircraft. (1) A general license is hereby issued to own, receive, acquire, possess, and use tritium or promethium 147 contained in luminous safety devices for use in aircraft, provided:

(i) Each device contains not more than 10 curies of tritium or 300 millicuries of promethium 147; and

(ii) Each device has been manufactured, assembled, or imported in accordance with a specific license issued by the U. S. Atomic Energy Commission, or each device has been manufactured or assembled in accordance with the specifications contained in a specific license or equivalent licensing document issued by the Agency or any Agreement State to the manufacturer or assembler of such device pursuant to licensing requirements equivalent to those in Section 32.53 of 10 CFR Part 32 of the regulations of the U. S. Atomic Energy Commission.

(2) Persons who own, receive, acquire, possess, or use luminous safety devices pursuant to the general license in subparagraph (1) of this paragraph are exempt from the requirements of Part C, except that they shall comply with the provisions of Sections C.402 and C.403.

(3) This general license does not authorize the manufacture, assembly, or repair of luminous safety devices containing tritium or promethium 147.

(4) This general license does not authorize the ownership, receipt, acquisition, possession or use of promethium 147 contained in instrument dials.

(5) The general license provided in this paragraph is subject to the provisions of Sections A.6, A.7, A.8, B.31, B.40, B.50, B.70, B.71, B.72 and B.100.

(e) Calibration and Reference Sources. (1) A general license is hereby issued to those persons listed below to own, receive, acquire, possess, use, and transfer, in accordance with the provisions of subparagraphs (3) and (4) of this paragraph (e), americium 241 in the form of calibration or reference sources:

(i) Any person who holds a specific license issued by the Agency which authorizes him to receive, possess, use, and transfer radioactive material; and

(ii) Any person who holds a specific license issued by the U. S. Atomic Energy Commission which authorizes him to receive, possess, use, and transfer special nuclear material.

(2) A general license is hereby issued to receive, possess, use and transfer plutonium in the form of calibration or reference sources in accordance with the provisions of subparagraphs (3) and (4) of this paragraph (e) to any person who holds a specific license issued by the Agency which authorizes him to receive, possess, use and transfer radioactive material.

(3) The general licenses in subparagraphs (1) and (2) of this paragraph apply only to calibration or reference sources which have been manufactured in accordance with the specifications contained in a specific license issued to the manufacturer or importer of the sources by the U. S. Atomic Energy Commission pursuant to Section 32.57 of 10 CFR Part 32 or Section 70.39 of 10 CFR Part 70 or which may have been manufactured in accordance with the specifications contained in a specific license or equivalent licensing document issued to the manufacturer by the Agency or any Agreement State pursuant to licensing requirements equivalent to those contained in Section 32.57 of 10 CFR Part 32 or Section 70.39 of 10 CFR Part 70 of the regulations of the U. S. Nuclear Regulatory Commission.

(4) The general licenses provided in subparagraphs (1) and (2) of this paragraph are subject to the provisions of Sections A.6, A.7, A.8, B.31, B.40, B.50, B.70, B.71, B.72, B.100 and Part C of these regulations. In addition, persons who own, receive, acquire, possess, use, and transfer one or more calibration or reference sources pursuant to these general licenses:

(i) Shall not possess at any one time, at any one location of storage or use, more than 5 microcuries of americium 241 and 5 microcuries of plutonium in such sources;

(ii) Shall not receive, possess, use, or transfer such source unless the source or the storage container, bears a label which includes the following statement or a substantially similar statement which contains the information called for in the following statement:

The receipt, possession, use and transfer of this source, Model _____, Serial No. _____, are subject to a general license and the regulations of the U. S. Nuclear Regulatory Commission or of a state with which the Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label.
CAUTION - RADIOACTIVE MATERIAL - THIS SOURCE CONTAINS (AMERICIUM 241). (PLUTONIUM*). DO NOT TOUCH RADIOACTIVE PORTION OF THIS SOURCE.

(Name of Manufacturer or Importer)

*Showing only the name of the appropriate material.

(iii) Shall not transfer, abandon, or dispose of such source except by transfer to a person authorized by a license from the Agency, the U. S. Nuclear Regulatory Commission, or an Agreement State to receive the source;

(iv) Shall store such source, except when the source is being used, in a closed container adequately designed and constructed to contain americium 241 or plutonium which might otherwise escape during storage; and

(v) Shall not use such source for any purpose other than the calibration of radiation detectors or the standardization of other sources.

(5) These general licenses do not authorize the manufacture or calibration of reference sources containing americium 241 or plutonium.

(f) Ownership of Byproduct Material. A general license is hereby issued to own byproduct material without regard to quantity. Notwithstanding any other provisions of this part, this general license does not authorize the manufacture, production, transfer, receipt, possession or use of byproduct material.

(g) Ice Detection Devices. (1) A general license is hereby issued to own, receive, acquire, possess, use and transfer strontium 90 contained in ice detection devices, provided each device contains not more than fifty microcuries of strontium 90 and each device has been manufactured or imported in accordance with a specific license issued by the U. S. Atomic Energy Commission or each device has been manufactured in accordance with the specifications contained in a specific license or equivalent licensing document issued by the Agency or any Agreement State to the manufacturer of such device pursuant to licensing requirements equivalent to those in Section 32.61 of 10 CFR Part 32 of the regulations of the Atomic Energy Commission.

(2) Persons who own, receive, acquire, possess, use or transfer strontium 90 contained in ice detection devices pursuant to the general license in subparagraph (1) of this paragraph (g):

(i) Shall, upon occurrence of visually observable damage, such as a bend or crack or discoloration from overheating, to the device, discontinue use of the device until it has been inspected, tested for leakage and repaired by a person holding a specific license or equivalent licensing document from the U. S. Atomic Energy Commission or an Agreement State to manufacture or service such devices; or shall dispose of the device pursuant to the provisions of this regulation;

(ii) Shall assure that all labels affixed to the device at the time of receipt, and which bear a statement which prohibits removal of the labels, are maintained thereon;

(iii) Are exempt from the requirements of Part C except that such persons shall comply with the provisions of Section C.301 C.402, and C.403 of these regulations; and

(3) This general license does not authorize the manufacture, assembly, disassembly or repair of strontium 90 in ice detection devices.

(4) The general license provided in this paragraph is subject to the provisions of Sections A.6, A.7, A.8, B.31, B.40, B.50, B.70, B.71, B.72 and B.100.

(h) (1) A general license is hereby issued to any physician, clinical laboratory or hospital to receive, acquire, possess, transfer or use, for any of the following stated tests, in accordance with the provisions of subparagraphs (2), (3), (4), (5) and (6) of this paragraph, the following radioactive materials in prepackaged units:

(i) Iodine 125, in units not exceeding ten (10) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(ii) Iodine 131, in units not exceeding ten (10) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(iii) Carbon 14 in units not exceeding ten (10) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(iv) Hydrogen 3 in units not exceeding fifty (50) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or radiation therefrom, to human beings or animals.

(v) Iron 59 in units not exceeding twenty (20) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(vi) Cobalt 57 in units not exceeding ten (10) microcuries each for use in IN VITRO clinical or laboratory tests not involving internal or external administration of radioactive material, or the radiation therefrom, to human beings or animals.

(2) No person shall receive, acquire, possess, use or transfer radioactive material pursuant to the general license established by subparagraph (1) of this paragraph until he has filed Form RP-205, "Certificate of IN VITRO Testing with Radioactive Material Under General License", with the Agency and received from the Agency a validated copy of Form RP-205 with certification number assigned. The physician, clinical laboratory or hospital shall furnish on Form RP-205 the following information and such other information as may be required by that form:

(i) Name and address of the physician, clinical laboratory or hospital;

(ii) The location of use; and,

(iii) A statement that the physician, clinical laboratory or hospital has appropriate radiation measuring instruments to carry out IN VITRO clinical or laboratory tests with radioactive materials as authorized under the general license in subparagraph (1) of this paragraph and that such tests will be performed only by personnel competent in the use of such instruments and in the handling of the radioactive materials.

(3) A person who receives, acquires, possesses or uses radioactive material pursuant to the general license established by subparagraph (1) of this paragraph shall comply with the following:

(i) The general licensee shall not possess at any one time, pursuant to the general license in subparagraph (1) of this paragraph, at any one location of storage or use, a total amount of:

- (a) Iodine 125, Iodine 131, and/or Iron 59 in excess of 200 microcuries.
- (b) Carbon 14 in excess of 100 microcuries
- (c) Hydrogen 3 in excess of 1000 microcuries
- (d) Cobalt 57 in excess of 100 microcuries.

(ii) The general licensee shall store the radioactive material, until used, in the original shipping container or in a container providing equivalent radiation protection.

(iii) The general licensee shall use the radioactive material only for the use authorized by subparagraph (1) of this paragraph.

(iv) The general licensee shall not transfer the radioactive material to a person who is not authorized to receive it pursuant to a license issued by the Agency, the U. S. Atomic Energy Commission, or any Agreement State, nor transfer the radioactive material in any manner other than the unopened, labeled shipping container as received from the supplier.

(4) The general licensee shall not receive, acquire, possess or use radioactive material pursuant to subparagraph (1) of the paragraph:

(i) Except as prepackaged units which are labeled in accordance with the provisions of a specific license issued under paragraph B.26(i) of this part or in accordance with the provisions of a specific license issued by the U. S. Atomic Energy Commission, or any Agreement State which authorizes the manufacture of Iodine 125, Iodine 131, Carbon 14, Hydrogen 3, Iron 59 or Cobalt 57 for distribution to persons generally licensed under paragraph B.22(h) or its equivalent.

(ii) Unless the following statement, or a substantially similar statement which contains the information called for in the following statement, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

This radioactive material may be received, acquired, possessed, and used only by physicians, clinical laboratories or hospitals, and only for IN VITRO clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use and transfer are subject to the regulations and a general license of the United States Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.

Name of Manufacturer

(5) The physician, clinical laboratory or hospital possessing or using radioactive material under the general license of subparagraph (1) of this paragraph shall report in writing to the Agency any changes in the information furnished by him in the "Certificate of IN VITRO Testing With Radioactive Material Under General License", Form RP-205. The report shall be furnished within thirty (30) days after the effective date of such change.

(6) Any person using radioactive material pursuant to the general license of subparagraph (1) of this paragraph is exempt from the requirements of Part C of these regulations with respect to radioactive materials covered by that general license.

SPECIFIC LICENSES

Sec. B.24 Filing of Application for Specific Licenses. (a) Application for a specific license shall be filed on a form prescribed and furnished by the Agency.

(b) The Agency may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the Agency to determine whether the application should be granted or denied or whether a license should be modified or revoked.

(c) Each application shall be signed by the applicant or licensee or a person duly authorized to act for and on his behalf.

(d) An application for a license may include a request for a license authorizing one or more activities.

(e) In his application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Agency provided such references are clear and specific.

(f) Applications and documents submitted to the Agency may be made available for public inspection except that the Agency may withhold any document or part thereof from public inspection if disclosure of its contents is not required in the public interest and would adversely affect the interest of a person concerned.

Sec. B.25 General Requirements for the Issuance of Specific Licenses. /4/
A license application will be approved if the Agency determines that:

(a) The applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with these regulations in such a manner as to minimize danger to public health and safety or property; and

(b) The applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety or property; and

(c) The issuance of the license will not be inimical to the health and safety of the public; and

(d) The applicant satisfies any applicable special requirements in Section B.26.

Sec. B.26 Special Requirements for Issuance of Specific Licenses for Radioactive Materials. (a) Human Use of Radioactive Materials in Institutions. In addition to the requirements set forth in Section B.25 above, a specific license for human use of radioactive material in institutions will be issued only if:

(1) The applicant has appointed a medical isotopes committee of at least three members to evaluate all proposals for research, diagnostic, and therapeutic use of radioisotopes within that institution. Membership of the committee shall include physicians expert in internal medicine, hematology, therapeutic radiology, and a person experienced in assay of radioisotopes and protection against radiation; and

(2) The applicant possesses adequate facilities for the clinical care of patients; and

(3) The physician designated on the application as the individual user has substantial experience in the handling and administration of radioisotopes and, where applicable, the clinical management of radioactive patients; and

(4) If the application is for a license to use unspecified quantities or multiple types of radioactive material, the applicant's staff has substantial experience in the use of a variety of radioactive materials for a variety of human uses.

/4/ Attention is directed to Section A.1(b)

(b) Licensing of Individual Physicians for Human Use of Radioactive Materials. In addition to the requirements set forth in Section B.25 above, a specific license for the human use of radioactive materials will be issued to an individual physician only if:

(1) The applicant has access to a hospital possessing adequate facilities to hospitalize and monitor the applicant's radioactive patients whenever it is advisable; and

(2) The applicant has extensive experience in the handling and administration of radioisotopes and, where applicable, the clinical management of radioactive patients.

(c) Human Use of Sealed Sources. In addition to the requirements set forth in Section B.25 above, a specific license for human use of sealed sources will be issued only if the applicant, or if the application is made by an institution, the individual user (i) has specialized training in the therapeutic use of the sealed source considered (teletherapy unit, beta applicator, etc.) or has experience equivalent to such training, and (ii) is a physician.

(d) Multiple Quantities or Types of Radioactive Material for Use in Research and Development. In addition to the requirements set forth in Section B.25 above, a specific license for multiple quantities or types of radioactive material for use in research and development will be issued only if:

(1) The applicant's staff has substantial experience in the use of a variety of radioisotopes for a variety of research and development uses; and

(2) The applicant has established an isotope committee (composed of such persons as a radiological safety officer, a representative of the business office, and one or more persons trained or experienced in the safe use of radioactive materials) which will review and approve, in advance of purchase of radioisotopes, proposals for such use; and

(3) The applicant has appointed a radiological safety officer having qualifications at least equivalent to those listed in Section B.60 (a)(2) who will advise and assist on radiological safety problems;

(4) The applicant has submitted to the Agency the names, addresses and qualifications of all members of the isotope committee and the radiological safety officer.

(e) Distribution of Devices to Persons Generally Licensed Under Section B.22(c). In addition to the requirements set forth in Section B.25 above, a specific license to distribute certain devices of the types enumerated in Section B.22(c) to persons generally licensed under Section B.22(c) will be issued only if:

(1) The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling, proposed uses, and potential hazards of the device to provide reasonable assurance that:

(i) The radioactive material contained in the device will not be lost;

(ii) No individual will receive a radiation exposure to a major portion of his body in excess of 0.5 rem in a year under ordinary circumstances of use;

(iii) The device can be safely operated by individuals not having training in radiological protection; and

(iv) The radioactive material within the device will not be accessible to unauthorized individuals.

(2) In describing the label or labels and contents thereon to be affixed to the device, the applicant should separately indicate those instructions and precautions which are necessary to assure safe operation of the device. Such instructions and precautions must be contained on labels bearing the statement, "Removal of this label is prohibited."

(3) In the event the applicant desires that the device be tested for proper operation of the on-off mechanism and indicator, if any, and for leakage of radioactive material, subsequent to the initial tests required by Section B.22 (c)(2)(iii), at intervals longer than six months but not exceeding three years, he shall include in his application sufficient information to demonstrate that such longer interval is justified by performance characteristics of the device or similar devices, and by design features which have a significant bearing on the probability or consequences of leakage of radioactive material from the device. In determining the acceptable interval for test of leakage of radioactive material, the Agency will consider information on particulars which include, but are not necessarily limited to:

(i) Primary containment (source capsule);

(ii) Protection of primary containment;

(iii) Method of sealing containment;

(iv) Containment construction materials;

(v) Form of contained radioactive material;

(vi) Maximum temperature withstood during prototype tests;

(vii) Maximum pressure withstood during prototype tests;

(viii) Maximum quantity of contained radioactive material;

(ix) Radiotoxicity of contained radioactive material; and,

(x) Operating experience with identical devices or similarly designed and constructed devices.

(f) Use of Sealed Sources in Industrial Radiography. /5/ In addition to the requirements set forth in Section B.25 above, a specific license for use of sealed sources in industrial radiography will be issued only if:

(1) The applicant will have an adequate program for training radiographers and radiographers' assistants and submits to the Agency a schedule of description of such program which specifies the:

- (i) Initial training;
- (ii) Periodic training;
- (iii) On-the-job training;

(iv) Means to be used by the licensee to determine the radiographer's knowledge and understanding of and ability to comply with Agency regulations and licensing requirements, and the operating and emergency procedures of the applicant;

(v) Means to be used by the licensee to determine the radiographer's assistant's knowledge and understanding of and ability to comply with the operating and emergency procedures of the applicant;

(2) The applicant has established and submits to the Agency satisfactory written operating and emergency procedures as described in Section D.7(c); and

(3) The applicant will have an adequate internal inspection system, or other management control, to assure that license provisions, regulations, and the applicant's operating and emergency procedures are followed by radiographers and radiographers' assistants; and

/5/ Industrial radiography for the purpose of this paragraph means the examination of the macroscopic structure of materials by nondestructive methods utilizing sealed sources of radioactive material (see also PART D for additional requirements pertaining to industrial radiography).

(4) The applicant submits to the Agency a description of his overall organizational structure pertaining to the industrial radiography program, including specified delegations of authority and responsibility for operation of the program; and,

(5) The applicant who desires to conduct his own leak tests has established adequate procedures to be followed in leak testing sealed sources for possible leakage and contamination and submits to the Agency a description of such procedures including:

- (i) Instrumentation to be used;
- (ii) Method of performing tests, e.g., points on equipment to be tested and method of taking test or sample; and
- (iii) Pertinent experience of the person who will perform the test.

(g) Multiple Quantities or Types of Radioactive Material for Use in Processing. In addition to the requirements set forth in Section B.25 above, a specific license for multiple quantities or types of radioactive material for use in processing for distribution to other authorized persons will be issued only if: /./

(1) The applicant's staff has substantial experience in the use of a variety of radioisotopes for processing and distribution; and

(2) The applicant has appointed a radiological safety officer, who will advise and assist on radiological safety problems.

(h) Licensing the Introduction of Radioactive Material Into Products in Exempt Concentrations. /./ In addition to the requirements set forth in Section B.25 above, a specific license authorizing the introduction of radioactive material into a product or material owned by or in the possession of the licensee or another to be transferred to persons exempt under Section B.4(a)(1) will be issued only if:

(1) The applicant submits a description of the product or material into which the radioactive material will be introduced, intended use of the radioactive material and the product into which it is introduced, method of introduction, initial concentration of the radioactive material in the product or material, control methods to assure that no more than the specified concentration is introduced into the product or material, estimated time interval between introduction and transfer of the product or material, and estimated concentration of the radioactive material in the product or material at the time of transfer by the licensee; and

/6/ Authority to transfer possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source, byproduct, or special nuclear material, intended for use by the general public may be obtained only from the United States Atomic Energy Commission, Division of Licensing and Regulation, Washington, D. C. 20545

(2) The applicant provides reasonable assurance that the concentrations of the radioactive material at the time of transfer will not exceed the concentrations in Schedule C, that reconcentration of the radioactive material in concentrations exceeding those in Schedule C is not likely, that use of lower concentrations is not feasible, and that the product or material is not likely to be incorporated in any food, beverage, cosmetic, drug or other commodity or product designed for ingestion or inhalation by, or application to, a human being.

Each person licensed under this paragraph (h) shall file an annual report with the Agency describing the type and quantity of each product or material into which radioactive material has been introduced during the reporting period, name and address of the person who owns or possesses the product or material into which radioactive material has been introduced, the type and quantity of radioactive material introduced into each such product or material, and the initial concentrations of radioactive material in the product or material at time of transfer of the radioactive material by the licensee. The report shall be submitted within 30 days after the end of each calendar year in which the licensee introduces radioactive material into a product or material pursuant to a license granted under this paragraph.

- (i) Manufacturing and distribution of radioactive material for certain IN VITRO clinical or laboratory testing under General License.

An application for a specific license to manufacture or distribute radioactive material for use under the general license of B.22(h) of this part will be approved if:

(1) The applicant satisfies the general requirements specified in Section B.26 of this part.

(2) The radioactive material is to be prepared for distribution in prepackaged units of:

- (i) Iodine 125 in units not to exceed 10 microcuries each.
- (ii) Iodine 131 in units not to exceed 10 microcuries each.
- (iii) Carbon 14 in units not to exceed 10 microcuries each.
- (iv) Hydrogen 3 in units not to exceed 50 microcuries each.
- (v) Iron 59 in units not to exceed 20 microcuries each.
- (vi) Cobalt 57 in units not to exceed 10 microcuries each.

(3) Each packaged unit bears a durable, clearly visible label:

- (i) identifying the radioactive contents as to chemical form and radionuclide, and indicating that the amount of radioactivity does not exceed quantities stated in (2) above.
- (ii) displaying the radiation caution symbol described in C.203(a)(1) of Part C and the words, "Caution, Radioactive Material", and "Not for Internal or External use in Humans or Animals".

(4) The following statement, or a substantially similar statement which contains the information called for in the following statement, appears on a label affixed to each prepackaged unit or appears in a leaflet or brochure which accompanies the package:

This radioactive material may be received, acquired, possessed, and used only by physicians, clinical laboratories or hospitals and only for IN VITRO clinical or laboratory tests not involving internal or external administration of the material, or the radiation therefrom, to human beings or animals. Its receipt, acquisition, possession, use and transfer are subject to the regulations and a general license of the United States Atomic Energy Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority.

Name of Manufacturer

(5) The label affixed to the unit, or the leaflet or brochure which accompanies the package, contains adequate information as to the precautions to be observed in handling and storing such radioactive material.

Sec. B.30 Issuance of Specific Licenses. (a) Upon a determination that an application meets the requirements of the Act and the regulations of the Agency, the Agency will issue a specific license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.

(b) The agency may incorporate in any license at the time of issuance, or thereafter by appropriate rule, regulation, or order, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of radioactive material subject to this part as it deems appropriate or necessary in order to:

- (1) Minimize danger to public health and safety or property,
- (2) Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as may be appropriate or necessary; and
- (3) Prevent loss or theft of material subject to this part.

Sec. B.31 Specific Terms and Conditions of Licenses. (a) Each license issued pursuant to this part shall be subject to all the provisions of the Act, now or hereafter in effect, and to all rules, regulations, and orders of the Agency.

(b) Neither the license nor any right under the license shall be assigned or otherwise transferred in violation of the provisions of the Act.

(c) Each person licensed by the Agency pursuant to this part shall confine his use and possession of the material licensed to the locations and purposes authorized in the license.

(d) Each licensee authorized under Section B.26(e) to distribute certain devices to generally licensed persons:

(1) Shall report to the Agency all transfers of such devices to persons generally licensed under Section B.22(c). Such report shall identify each general licensee by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device. The report shall be submitted within 30 days after the end of each calendar quarter in which such a device is transferred to generally licensed persons; and

(2) Shall furnish to each general licensee in this State to whom he transfers such device a copy of the general license contained in Section B.22(c).

Sec. B.32 Expiration of Licenses. Except as provided in Section B.33(b), each specific license shall expire at the end of the day, in the month and year stated therein.

Sec. B.33 Renewal of Licenses. (a) Applications for renewal of specific licenses shall be filed in accordance with Section B.24.

(b) In any case in which a licensee, not less than thirty (30) days prior to expiration of his existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, such existing license shall not expire until the application has been finally determined by the Agency.

Sec. B.34 Amendment of Licenses at Request of Licensee. Applications for amendment of a license shall be filed in accordance with Section B.24 and shall specify the respects in which the licensee desires his license to be amended and the grounds for such amendment.

Sec. B.35 Agency Action on Applications to Renew or Amend. In considering an application by a licensee to renew or amend his license, the Agency will apply the criteria set forth in Sections B.25 and B.26, as applicable.

Sec. B.36 Inalienability of Licenses. No license issued or granted under this part and no right to possess or utilize radioactive material granted by any license issued pursuant to this part shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Agency shall, after securing full information, find that the transfer is in accordance with the provisions of the Act, and shall give its consent in writing.

Sec. B.37 Persons Possessing a License for Source, Byproduct, or Special Nuclear Material in Quantities Not Sufficient to Form A Critical Mass on Effective Date of These Regulations. Any person who, on the effective date of these regulations, possesses a general or specific license for source, byproduct, or special nuclear material in quantities not sufficient to form a critical mass, issued by the United States Atomic Energy Commission, shall be deemed to possess a like license issued under this part and the Act, such license to expire either one hundred eighty (180) days after receipt from the Agency of a notice of expiration of such license, or on the date of expiration specified in the United States Atomic Energy Commission license, whichever is earlier.

Sec. B.38 Persons Possessing Radioactive Material Other Than Agreement Material on Effective Date of These Regulations. Any person who, on the effective date of these regulations, possesses naturally occurring or accelerator-produced radioactive material, which is subject to a specific license under the terms of the Act and these regulations, shall be considered to possess such material under proper licensing issued in accordance with these regulations and the Act. Such licenses expire one hundred eighty (180) days after the effective date of these regulations.

Sec. B.40 Transfer of Material. (a) No licensee shall transfer radioactive material except as authorized pursuant to this section.

(b) Any licensee may transfer radioactive material:

- (1) To the Agency;
- (2) To the United States Atomic Energy Commission;
- (3) To any person exempt from the regulations in this part to the extent permitted under such exemption;
- (4) To any person authorized to receive such material under terms of a general license or its equivalent, or a specific license or equivalent licensing document, issued by the Agency, the United States Atomic Energy Commission, or any agreement state, or to any person otherwise authorized to receive such material by the Federal Government or any agency thereof, the Agency, or any agreement state; or
- (5) As otherwise authorized by the Agency in writing.

Sec. E.50 Modification, Revocation, and Termination of Licenses. (a) The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the Act, or by reason of rules, regulations, and orders issued by the Agency.

(b) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the Act, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Agency to refuse to grant a license on an original application, or for violation of, or failure to observe any of, the terms and conditions of the Act, or the license, or of any rule, regulation, or order of the Agency.

(c) Except in cases of willfulness or those in which the public health, interest, or safety requires otherwise, no license shall be modified, suspended, or revoked unless, prior to the institution of proceedings therefor, facts or conduct which may warrant such action shall have been called to the attention of the licensee in writing and the licensee shall have been accorded an opportunity to demonstrate or achieve compliance with all lawful requirements.

(d) The Agency may terminate a specific license upon request submitted by the licensee to the Agency in writing.

REGISTRATION

Sec. B.60 Registration of Radiation Machines. (a) The owner or person having possession of any radiation machine, except those exempt under provisions of Sections A.1, B.5, B.6, and B.7:

(1) Shall register such machine with the Agency within ten (10) days after acquisition of such machine. Registration shall be complete on forms furnished by the Agency and shall contain all information required by the form and accompanying instructions. A NOTIFICATION OF REGISTRATION will be forwarded by the Agency to the registrant.*

(2) Shall designate an individual who will be responsible for radiation protection for the machine. Such individual shall:

(i) Be qualified by training and experience concerning all hazards and precautions involved in handling the machine(s) for which he is responsible;

(ii) Recommend a detailed program of radiation safety for effective compliance with the applicable requirements of these regulations;

(iii) Give instructions concerning hazards and safety practices to persons who may be exposed to radiation from the machine.

(iv) Make surveys and carry out other procedures as required by these regulations.

(3) Shall prohibit any person from furnishing equipment servicing or services, of every nature related to any radiation machine registered in compliance with Section B.60(a)(1) of these regulations, until such person provides the number and date of the NOTIFICATION OF REGISTRATION which has been furnished by the Agency to such person in compliance with Section B.61 of these regulations; except that, such servicing or services may be permitted provided the registrant under Section B.60(a)(1) of these regulations shall, within 24 hours of the furnishing of such servicing or services which are not registered in compliance with Section B.61 of these regulations, confirm in writing to the Agency the name and address of such unregistered person who furnishes or offers to furnish such services.

* Attention is directed to Section B.62 and Section C.205(b).

When, in the opinion of the Agency, the individual designated to be responsible for radiation safety does not have qualifications sufficient to insure safety of the machine for which he is responsible, the Agency may order the registrant to designate another individual who meets the requirements of Section B.60(a)(2).

(b) The registrant shall notify the Agency within ten (10) days of any change which increases the strength or rating of the source, or of any other change which renders the information submitted in compliance with Section B.60(a) no longer accurate. A change in the ownership or possession of the source shall terminate the registration.

Sec. B.61 Registration of Servicing and Services. (a) Every person who furnishes or offers to furnish equipment servicing or services in this State, to an Agency licensee or registrant shall register with the Agency at least 30 days prior to furnishing or offering to furnish any such services. Activities covered by a specific license or equivalent licensing document issued by the Agency, the U. S. Atomic Energy Commission, or any agreement state, are not required to be registered by this section.

Registration shall be complete on forms furnished by the Agency and shall contain all information required by the forms and accompanying instructions. A NOTIFICATION OF REGISTRATION will be forwarded by the Agency to the Registrant.

(b) For purposes of this section services include but are not limited to:

- (1) Installation or servicing of radiation machines;
- (2) Calibration of radiation machines or radiation measurement instruments or devices;
- (3) Radiation protection surveys or health physics consultations;
- (4) Film badge or other personnel dosimetry services.

Sec. B.62 Registration Data Changes. Every registrant shall notify the Agency within ten (10) days of any change which renders the information originally submitted by registration form no longer accurate.

Sec. B.63 Advertisement of Registration Prohibited. No person, in any advertisement, shall refer to the fact that a source of radiation is registered with the Agency and no person shall state or imply that any activity under such registration has been approved by the Agency.

RECORDS, INSPECTIONS, AND TESTS

Sec. B.70 Records. Each licensee and registrant shall keep records showing the receipt, transfer, and disposal of all sources of radiation.

Sec. B.71 Inspections. (a) Each licensee and registrant shall afford the Agency or its authorized representatives at all reasonable times opportunity to

inspect sources of radiation and the premises and facilities wherein such sources of radiation are used or stored.

(b) Each licensee and registrant shall make available to the Agency or its authorized representative for inspection, upon reasonable notice, records maintained pursuant to these regulations.

Sec. B.72 Tests. Each licensee and registrant shall perform, upon instruction from the Agency, or shall permit the Agency or its authorized representatives to perform, such reasonable tests as the Agency deems appropriate or necessary including, but not limited to, tests of

(a) Sources of radiation;

(b) Facilities wherein sources of radiation are used or stored;

(c) Radiation detection and monitoring instruments; and

(d) Other equipment and devices used in connection with utilization or servicing or storage of licensed or registered sources of radiation.

RECIPROCITY

Sec. B.9C Reciprocal Recognition of Licenses. (a) Subject to these regulations, any person who possesses a specific license or equivalent licensing document issued by the United States Atomic Energy Commission or any agreement State, other than this State, may conduct the activities authorized in such licensing document within this State for a period not in excess of twenty days in any period of 12 consecutive months without obtaining a specific license from the Agency, provided that:

(1) The licensing document does not limit the activity authorized by such document to specified installations or locations; and

(2) The out-of-state licensee notifies the Agency in writing at least 5 days prior to engaging in such activity if a licensable quantity of radioactive material will be transported into the State of North Carolina. Such notification shall indicate the location, period, and type of proposed possession and use within this State, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the 5-day period would impose an undue hardship on the out-of-state licensee, he may, upon application to the Agency, obtain permission to proceed sooner; and

(3) The out-of-state licensee complies with all applicable regulations of the Agency and with all the terms and conditions of his licensing document, except any such terms and conditions which may be inconsistent with applicable regulations of the Agency; and

(4) The out-of-state licensee supplies such other information as the Agency may request.

(b) To the extent provided in Sections B.3, B.4, and B.22, any person may transfer, receive, acquire, own, possess, and use any equipment, device, commodity, or other product containing radioactive material which has been manufactured, processed, or produced in accordance with a specific license or equivalent

licensing document issued by the United States Atomic Energy Commission or any agreement state.

(c) Notwithstanding the provisions of paragraph (a) of this Section B.90, any person who holds a specific license or equivalent licensing document issued by the United States Atomic Energy Commission or an agreement state authorizing the holder to manufacture, install, or service a device described in Section B.22 (c)(1) within areas subject to the jurisdiction of the licensing body is hereby granted a general license to install and service such device in this state provided that:

(1) Such person shall file a report with the Agency within 30 days after the end of each calendar quarter in which any device is transferred to or installed in this state. Each such report shall identify each general licensee by name and address, the type of device transferred, and the quantity and type of radioactive material contained in the device;

(2) The device has been manufactured, labeled, installed, and serviced in accordance with applicable provisions of the specific license or equivalent licensing document issued to such person by the U. S. Atomic Energy Commission or an agreement state;

(3) Such person shall assure that any labels required to be affixed to the device under regulations of the authority which licensed manufacture of the device bear a statement that "removal of this label is prohibited"; and

(4) The holder of the specific license or equivalent licensing document shall furnish to each general licensee to whom he transfers such device or on whose premises he installs such device a copy of the general license contained in Section B.22(c).

(d) The Agency may withdraw, limit, or qualify its acceptance of any specific license or equivalent licensing document issued by another agency, or any product distributed pursuant to such licensing document, upon determining that such action is necessary in order to prevent undue hazard to public health and safety or property in North Carolina.

TRANSPORTATION

Sec. B.100 Intrastate Transportation of Radioactive Materials. (a) The provisions of this section apply to transportation of radioactive material, or the delivery of radioactive material to a carrier for transportation, which is not subject to the rules and regulations of the U. S. Department of Transportation and other agencies of the United States having jurisdiction.

(b) No licensee shall transport any radioactive material outside of the confines of his plant or other authorized location of use, or deliver any radioactive material to a carrier for transportation, unless the licensee complies with all requirements, appropriate to the mode of transportation, relating to the packaging of the radioactive material and to the marking and labeling of the package and transporting vehicle, of the rules and regulations published by the U. S. Department of Transportation (46 C.F.R. Part 146, 49 C.F.R. Parts 173-179 and 14 C.F.R. Part 103) to the same extent as if the transportation were subject to the rules and regulations of that agency.

SCHEDULE A

PART B

The following devices and equipment incorporating radioactive material, when manufactured, tested, and labeled by the manufacturer in accordance with the specifications contained in a specific license or equivalent licensing document issued by the Agency, the United States Atomic Energy Commission, or any agreement state are confirmed to be under a general license pursuant to Section B.22 (a)(1).

(a) Static elimination device. Devices designed for use as static eliminators which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries of Polonium 210 per device.

(b) Spark gap and electronic tubes. Spark gap tubes and electronic tubes which contain radioactive material consisting of not more than 5 microcuries per tube of Cesium 137, or Nickel 63, or Krypton 85 gas, or not more than one microcurie per tube of Cobalt 60.

(c) Light meter. Devices designed for use in measuring or determining light intensity which contain, as a sealed source or sources, radiation material consisting of a total of not more than 200 microcuries of Strontium 90 per device.

(d) Ion generating tube. Devices designed for ionization of air which contain, as a sealed source or sources, radioactive material consisting of a total of not more than 500 microcuries of Polonium 210 per device or a total of not more than 50 millicuries of Hydrogen 3 (tritium) per device.

SCHEDULE B

PART B

GENERALLY LICENSED QUANTITIES

Radioactive Material	Column I Not as A Sealed Source (micro- curies)	Column II As A Sealed Source (micro- curies)
Antimony (Sb 124)	1	10
Arsenic 76 (As 76)	10	10
Arsenic 77 (As 77)	10	10
Barium 140--Lanthanum 140 (BaLa 140)	1	10
Beryllium (Be 7)	50	50
Cadmium 109--Silver 109 (CdAg 109)	10	10
Calcium 45 (Ca 45)	10	10
Carbon 14 (C14)	50	50
Cerium 144--Praseodymium (CePr 144)	1	10
Cesium--Barium 137 (CsBa 137)	1	10
Chlorine 36 (Cl 36)	1	10
Chromium 51 (Cr 51)	50	50
Cobalt 60 (Co 60)	1	10
Copper 64 (Cu 64)	50	50
Europlum 154 (Eu 154)	1	10
Fluorine 18 (F 18)	50	50
Gallium 72 (Ga 72)	10	10
Germanium 71 (Ge 71)	50	50
Gold 198 (Au 198)	10	10
Gold 199 (Au 199)	10	10
Hydrogen 3 (Tritium) (H 3)	250	250
Indium 114 (In 114)	1	10
Iodine 131 (I 131)	10	10
Iridium 192 (Ir 192)	10	10
Iron 55 (Fe 55)	50	50
Iron 59 (Fe 59)	1	10
Lanthanum 140 (La 140)	10	10
Manganese 52 (Mn 52)	1	10
Manganese 56 (Mn 56)	50	50
Molybdenum 99 (Mo 99)	10	10
Nickel 59 (Ni 59)	1	10
Nickel 63 (Ni 63)	1	10
Niobium 95 (Nb 95)	10	10

SCHEDULE B

GENERALLY LICENSED QUANTITIES--Continued

	Column I Not as A Sealed Source (micro- curies)	Column II As A Sealed Source (micro- curies)
Radioactive Material		
Palladium 109 (Pd 109)	10	10
Palladium 103--Rhodium 103 (PdRh 103)	50	50
Phosphorus 32 (P 32)	10	10
Polonium 210 (Po 210)	0.1	1
Potassium 42 (K 42)	10	10
Praseodymium 143 (Pr 143)	10	10
Promethium 147 (Pm 147)	10	10
Rhenium 186 (Re 186)	10	10
Radium 226 (Ra 226)	0.1	1
Rhodium 105 (Rh 105)	10	10
Rubidium 86 (Rb 86)	10	10
Ruthenium 106--Rhodium 106 (RuRh 106)	1	10
Samarium 153 (Sm 153)	10	10
Scandium 46 (Sc 46)	1	10
Silver 105 (Ag 105)	1	10
Silver 111 (Ag 111)	10	10
Sodium 22 (Na 22)	10	10
Sodium 24 (Na 24)	10	10
Strontium 89 (Sr 89)	1	10
Strontium 90--Yttrium 90 (SrY)	0.1	1
Sulfur 35 (S 35)	50	50
Tantalum 182 (Ta 182)	10	10
Technetium 96 (Tc 96)	1	10
Technetium 99 (Tc 99)	1	10
Tellurium 127 (Te 127)	10	10
Tellurium 129 (Te 129)	1	10
Thallium 204 (Tl 204)	50	50
Tin 113 (Sn 113)	10	10
Tungsten 185 (W 185)	10	10
Vanadium 48 (V 48)	1	10
Yttrium 90 (Y 90)	1	10
Yttrium 91 (Y 91)	1	10
Zinc 65 (Zn 65)	10	10
Beta and/or Gamma emitting byproduct material not listed above	1	10

SCHEDULE C

PART B

EXEMPT CONCENTRATIONS

SEE NOTES ON PAGE B-25

Element (atomic number)	Isotope	Column I	Column II
		Gas concentration uc/ml ¹	Liquid and solid concentration uc/ml ²
Antimony (51)	Sb 122		3X10 ⁻⁴
	Sb 124		2X10 ⁻⁴
	Sb 125		1X10 ⁻³
Argon (18)	A 37	1X10 ⁻³	
	A 41	4X10 ⁻⁷	
Arsenic (33)	As 73		5X10 ⁻³
	As 74		5X10 ⁻⁴
	As 76		2X10 ⁻⁴
	As 77		8X10 ⁻⁴
Barium (56)	Ba 131		2X10 ⁻³
	Ba 140		3X10 ⁻⁴
Beryllium (4)	Be 7		2X10 ⁻²
Bismuth (83)	Bi 206		4X10 ⁻⁴
Bromine (35)	Br 82	4X10 ⁻⁷	3X10 ⁻³
Cadmium (48)	Cd 109		2X10 ⁻³
	Cd 115m		3X10 ⁻⁴
	Cd 115		3X10 ⁻⁴
Calcium (20)	Ca 45		9X10 ⁻⁵
	Ca 47		5X10 ⁻⁴
Carbon (6)	C 14	1X10 ⁻⁶	8X10 ⁻³
Cerium (58)	Ce 141		9X10 ⁻⁴
	Ce 143		4X10 ⁻⁴
	Ce 144		1X10 ⁻⁴
Cesium (55)	Cs 131		2X10 ⁻²
	Cs 134m		6X10 ⁻⁵
	Cs 134		9X10 ⁻⁵
Chlorine (17)	Cl 38	9X10 ⁻⁷	4X10 ⁻³
Chromium (24)	Cr 51		2X10 ⁻²
Cobalt (27)	Co 57		5X10 ⁻³
	Co 58		1X10 ⁻³
	Co 60		5X10 ⁻⁴
Copper (29)	Cu 64		3X10 ⁻³
Dysprosium (66)	Dy 165		4X10 ⁻³
	Dy 166		4X10 ⁻⁴
Erbium (68)	Er 169		9X10 ⁻⁴
	Er 171		1X10 ⁻³
Europium (63)	Eu 152		6X10 ⁻⁴
	(T/2=9.2 Hrs) Eu 155		2X10 ⁻³

SCHEDULE C
EXEMPT CONCENTRATIONS---Continued

Element (atomic number)	Isotope	Column I Gas con- centration uc/ml ¹	Column II Liquid and solid concen- tration uc/ml ²
Fluorine (9)	F 18	2X10 ⁻⁶	8X10 ⁻³
Gadolinium (64)	Gd 153		2X10 ⁻³
	Gd 159		8X10 ⁻⁴
Gallium (31)	Ga 72		4X10 ⁻⁴
Germanium (32)	Ge 71		2X10 ⁻²
Gold (79)	Au 196		2X10 ⁻³
	Au 198		5X10 ⁻⁴
	Au 199		2X10 ⁻³
Hafnium (72)	Hf 181		7X10 ⁻⁴
Hydrogen (1)	H 3	5X10 ⁻⁶	3X10 ⁻²
Indium (40)	In 113m		1X10 ⁻²
	In 114m		2X10 ⁻⁴
Iodine (53)	I 126	3X10 ⁻⁹	2X10 ⁻⁵
	I 131	3X10 ⁻⁹	2X10 ⁻⁵
	I 132	8X10 ⁻⁸	6X10 ⁻⁴
	I 133	1X10 ⁻⁸	7X10 ⁻⁵
	I 134	2X10 ⁻⁷	1X10 ⁻³
Iridium (77)	Ir 190		2X10 ⁻³
	Ir 192		4X10 ⁻⁴
	Ir 194		3X10 ⁻⁴
Iron (26)	Fe 55		8X10 ⁻³
	Fe 59		6X10 ⁻⁴
Krypton (36)	Kr 85m	1X10 ⁻⁶	
	Kr 85	3X10 ⁻⁶	
Lanthanum (57)	La 140		2X10 ⁻⁴
Lead (82)	Pb 203		4X10 ⁻³
Lutetium (71)	Lu 177		1X10 ⁻³
Manganese (25)	Mn 52		3X10 ⁻⁴
	Mn 54		1X10 ⁻³
	Mn 56		1X10 ⁻³
Mercury (80)	Hg 197m		2X10 ⁻³
	Hg 197		3X10 ⁻³
	Hg 203		2X10 ⁻⁴
Molybdenum (42)	Mo 99		2X10 ⁻³
Neodymium (60)	Nd 149		3X10 ⁻³
	Nd 147		6X10 ⁻⁴
Nickel (28)	Ni 65		1X10 ⁻³
Niobium (Colum- bium) (41)	Nb 95		1X10 ⁻³
	Nb 97		9X10 ⁻³

SCHEDULE C

EXEMPT CONCENTRATIONS---Continued

Element (atomic number)	Isotope	Column I Gas concentration uc/ml ¹	Column II Liquid and solid concentration uc/ml ²
Osmium (76)	Os 185		7X10 ⁻⁴
	Os 191m		3X10 ⁻²
	Os 191		2X10 ⁻³
	Os 193		6X10 ⁻⁴
Palladium (46)	Pd 103		3X10 ⁻³
	Pd 109		9X10 ⁻⁴
Phosphorus (15)	P 32		2X10 ⁻⁴
Platinum (78)	Pt 191		1X10 ⁻³
	Pt 193m		1X10 ⁻²
	Pt 197m		1X10 ⁻²
	Pt 197		1X10 ⁻³
Polonium (84)	Po 210	2X10 ⁻¹⁰	7X10 ⁻⁶
Potassium (19)	K 42		3X10 ⁻³
Praseodymium (59)	Pr 142		3X10 ⁻⁴
	Pr 143		5X10 ⁻⁴
Promethium (61)	Pm 147		2X10 ⁻³
	Pm 149		4X10 ⁻⁴
Radium (88)	Ra 226	1X10 ⁻¹¹	1X10 ⁻⁷
	Ra 228	2X10 ⁻¹¹	3X10 ⁻⁷
Rhenium (75)	Re 183		6X10 ⁻³
	Re 186		9X10 ⁻⁴
	Re 188		6X10 ⁻⁴
	Rh 103m		1X10 ⁻¹
Rhodium (45)	Rh 105		1X10 ⁻³
Rubidium (37)	Rb 86		7X10 ⁻⁴
Ruthenium (44)	Ru 97		4X10 ⁻³
	Ru 103		8X10 ⁻⁴
	Ru 105		1X10 ⁻³
	Ru 106		1X10 ⁻⁴
Samarium (62)	Sm 153		8X10 ⁻⁴
Scandium (21)	Sc 46		4X10 ⁻⁴
	Sc 47		9X10 ⁻⁴
	Sc 48		3X10 ⁻⁴
	Se 75		3X10 ⁻³
Selenium (34)	Si 31		9X10 ⁻³
Silicon (14)	Ag 105		1X10 ⁻³
Silver (47)	Ag 110m		3X10 ⁻⁴
	Ag 111		4X10 ⁻⁴

SCHEDULE C

EXEMPT CONCENTRATIONS--Continued

Element (atomic number)	Isotope	Column I Gas concentration uc/ml ¹	Column II Liquid and solid concentration uc/ml ²
Sodium (11)	Na 24		2X10 ⁻³
Strontium (38)	Sr 89		1X10 ⁻⁴
	Sr 91		7X10 ⁻⁴
	Sr 92		7X10 ⁻⁴
	S 35	9X10 ⁻⁸	6X10 ⁻⁴
Sulfur (16)	Ta 182		4X10 ⁻⁴
Tantalum (73)	Tc 96m		1X10 ⁻¹
	Tc 96		1X10 ⁻³
Technetium (43)	Te 125m		2X10 ⁻³
	Te 127m		6X10 ⁻⁴
	Te 127		3X10 ⁻³
	Te 129m		3X10 ⁻⁴
	Te 131m		6X10 ⁻⁴
	Te 132		3X10 ⁻⁴
	Tb 160		4X10 ⁻⁴
	Tl 200		4X10 ⁻³
Terbium (65)	Tl 201		3X10 ⁻³
	Tl 202		1X10 ⁻³
Thallium (81)	Tl 204		1X10 ⁻³
	Tm 170		5X10 ⁻⁴
	Tm 171		5X10 ⁻³
	Sn 113		9X10 ⁻⁴
Thulium (69)	Sn 125		2X10 ⁻⁴
	W 181		4X10 ⁻³
Tin (50)	W 187		7X10 ⁻⁴
	V 48		3X10 ⁻⁴
Tungsten (Wolfram) (74)	Xe 131m	4X10 ⁻⁶	
	Xe 133	3X10 ⁻⁶	
Vanadium (23)	Xe 135	1X10 ⁻⁶	
	Yb 175		1X10 ⁻³
Xenon (54)	Y 90		2X10 ⁻⁴
	Y 91m		3X10 ⁻²
Ytterbium (70)	Y 91		3X10 ⁻⁴
	Y 92		6X10 ⁻⁴
	Y 93		3X10 ⁻⁴
	Zn 65		1X10 ⁻³
Yttrium (39)	Zn 69m		7X10 ⁻⁴
	Zn 69		2X10 ⁻²
Zinc (30)			

SCHEDULE C

EXEMPT CONCENTRATIONS--Continued

Element (atomic number)	Isotope	Column I Gas con- centration uc/ml ¹	Column II Liquid and solid concen- tration uc/ml ²
Zirconium (40)	Zr 95		6×10^{-4}
	Zr 97		2×10^{-4}
Beta and/or gamma emitting radioactive material not listed above with half-life less than 3 years.		1×10^{-10}	1×10^{-6}

NOTE 1: Many radioisotopes disintergrate into isotopes which are also radioactive. In expressing the concentrations in Schedule C., the activity stated is that of the parent isotope and takes into account the daughters.

NOTE 2: For purposes of Section B.4 where there is involved a combination of isotopes the limit for the combination should be derived as follows: Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule C for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

EXAMPLE:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

¹Values are given only for those materials normally used as gases.
²uc/gm for solids.

NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION

PART C
STANDARDS FOR PROTECTION AGAINST RADIATION

EFFECTIVE DATE AUGUST 1, 1964

FIRST REVISION JANUARY 1, 1967
(see list of amendments)

SECOND REVISION JANUARY 1, 1970
(see list of amendments)

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

PURPOSE AND SCOPE

Sec. C.1 Purpose and Scope. This part establishes standards for protection against radiation hazards. Except as otherwise specifically provided in these regulations, this part applies to all licensees or registrants.

PERMISSIBLE DOSES, LEVELS,

AND CONCENTRATIONS

Sec. C.101 Exposure of Individuals to Radiation in Restricted Areas.

(a) Except as provided in paragraph (b) of this section, /1/ no licensee or registrant shall possess, use, receive, or transfer sources of radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from all sources of radiation in the licensee's or registrant's possession a dose in excess of the limits specified in the following table:

	<u>Rems per calendar quarter</u>
1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads.	1-1/4
2. Hands and forearms; feet and ankles.	18-3/4
3. Skin of whole body.	7-1/2

(b) A licensee or registrant may permit an individual in a restricted area to receive a dose to the whole body greater than that permitted under paragraph (a) of this section, provided:

(1) During any calendar quarter the dose to the whole body from sources of radiation in the licensee's or registrant's possession shall not exceed 3 rems; and

(2) The dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed 5 (n-18) rems where "n" equals the individual's age in years at his last birthday; and "

(3) The licensee or registrant has determined the individual's accumulated occupational dose to the whole body on Agency Form Rad H-102, or on a clear and legible record containing all the information required in that form, and has otherwise complied with the requirements of Section C.102. As used in paragraph (b), "dose to the whole body" shall be deemed to include any dose to the whole body, gonads, active blood-forming organs, head and trunk, or lens of the eye.

Sec. C.102 Determination of Accumulated Dose. This section contains requirements which must be satisfied by licensees or registrants who propose, pursuant to paragraph (b) of Section C.101, to permit individuals in a restricted area to receive exposure to radiation in excess of the limits specified in paragraph (a) of Section C.101.

/1/ See also Section A.1(c)

(b) Before permitting any individual in a restricted area to receive exposure to radiation in excess of the limits specified in paragraph (a) of Section C.101, each licensee or registrant shall:

(1) Obtain a certificate on Agency Form Rad H-102, or on a clear and legible record containing all the information required in that form, signed by the individual, showing each period of time after the individual attained the age of 18 in which the individual received an occupational dose of radiation; and

(2) Calculate on Agency Form Rad H-102, in accordance with the instructions appearing therein, or on a clear and legible record containing all the information required in that form, the previously accumulated occupational dose received by the individual and the additional dose allowed for that individual under Section C.101(b).

(c) (1) In the preparation of Agency Form Rad H-102, or a clear and legible record containing all the information required in that form, the licensee or registrant shall make a reasonable effort to obtain reports of the individual's previously accumulated occupational dose. For each period for which the licensee or registrant obtains such reports, he shall use the dose shown in the report in preparing the form. In any case where a licensee or registrant is unable to obtain reports of the individual's occupational dose for a previous complete calendar quarter, it shall be assumed that the individual has received the occupational dose specified in whichever of the following columns apply:

	Column 1	Column 2
	Assumed exposure in rems for calendar quarters prior to January 1, 1961	Assumed exposure in rems for calendar quarters beginning on or after January 1, 1961
<u>Part of Body</u>		
Whole body, gonads		
active blood-forming		
organs, head and		
trunk, lens of eye	3 3/4	1 1/4

(2) The licensee or registrant shall retain and preserve records used in preparing Agency Form Rad H-102.

If calculation of the individual's accumulated occupational dose for all periods prior to January 1, 1961, yields a result higher than the applicable accumulated dose value for the individual as of that date, as specified in paragraph (b) of Section C.101, the excess may be disregarded.

Sec. C.103 Exposure of Individuals to Concentrations of Radioactive Material in Restricted Areas. (a) No licensee shall possess, use, receive, or transfer radioactive material in such a manner as to cause an individual in a restricted area to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Appendix A, Table 1, of this part. "Expose", as used in this section, means that the individual is present in an airborne concentration. No allowance shall be made for the use of protective clothing or equipment, or particle size, except as authorized by the Agency pursuant to paragraph (c) of this section.

(b) The limits given in Appendix A, Table I, of this part are based upon exposure to the concentrations specified for forty hours in any period of seven

consecutive days. In any such period where the number of hours of exposure is less than forty, the limits specified in the table may be increased proportionately. In any such period where the number of hours of exposure is greater than forty, the limits specified in the table shall be decreased proportionately.

(c) (1) Except as authorized by the Agency pursuant to this paragraph, no allowance shall be made for particle size or the use of protective clothing or equipment in determining whether an individual is exposed to an airborne concentration in excess of the limits specified in Appendix A, Table I.

(2) The Agency may authorize a licensee to expose an individual in a restricted area to airborne concentrations in excess of the limits specified in Appendix A, Table I, upon receipt of an application demonstrating that the concentration is composed in whole or in part of particles of such size that such particles are not respirable and that the individual will not inhale the concentrations in excess of the limits established in Appendix A, Table I. Each application under this subparagraph shall include an analysis of particle sizes in the concentrations and a description of the methods used in determining the particle sizes.

(3) The Agency may authorize a licensee to expose an individual in a restricted area to airborne concentrations in excess of the limits specified in Appendix A, Table I, upon receipt of an application demonstrating that the individual will wear appropriate protective equipment and that the individual will not inhale, ingest, or absorb quantities of radioactive material in excess of those which might otherwise be permitted under this part for individuals in restricted areas during a 40-hour week. Each application under this subparagraph shall contain the following information:

(i) A description of the protective equipment to be employed, including the efficiency of the equipment for the material involved;

(ii) Procedures for the fitting, maintenance, and cleaning of the protective equipment;

(iii) Procedures governing the use of the protective equipment, including supervisory procedures and length of time the equipment will be used by the individuals in each work week. The proposed periods for use of the equipment by any individual should not be of such duration as would discourage observance by the individual of the proposed procedures; and

(iv) The average concentrations present in the areas occupied by individuals.

Sec. C.104 Exposure of Minors. (a) No licensee or registrant shall possess, use, or transfer sources of radiation in such a manner as to cause any individual within a restricted area, who is under 18 years of age, to receive in any period of one calendar quarter from all sources of radiation in such licensee's or registrant's possession a dose in excess of 10 percent of the limits specified in the table in paragraph (a) of Section C.101.

(b) No licensee shall possess, use, or transfer radioactive material in such a manner as to cause any individual within a restricted area, who is under 18 years of age, to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Appendix A, Table II, of this part. For purposes of this paragraph, concentrations may be averaged over periods not greater than a week.

(c) The provisions of paragraph (c), Section C.103, shall apply to exposures subject to paragraph (b) of this section.

Sec. C.105 Permissible Levels of Radiation From External Sources in Unrestricted Areas. (a) Except as authorized by the Agency pursuant to paragraph (b) of this section, no licensee or registrant shall possess, use, or transfer sources of radiation in such a manner as to create in any unrestricted area from such sources of radiation in his possession:

(1) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of two millirems in any one hour; or

(2) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of 100 millirems in any seven consecutive days.

(b) Any person may apply to the Agency for proposed limits upon levels of radiation in unrestricted areas in excess of those specified in paragraph (a) of this section resulting from the applicant's possession or use of sources of radiation. Such applications should include information as to anticipated average radiation levels and anticipated occupancy times for each unrestricted area involved. The Agency will approve the proposed limits if the applicant demonstrates to the satisfaction of the Agency that the proposed limits are not likely to cause any individual to receive a dose to the whole body in any period of one calendar year in excess of 0.5 rem.

Sec. C.106 Concentration in Effluents to Unrestricted Areas. (a) A licensee shall not possess, use or transfer licensed material so as to release to an unrestricted area radioactive material in concentrations which exceed the limits specified in Appendix A, Table II, of this part except as authorized pursuant to Section C.302 or paragraph (b) of this section. For purposes of this section concentrations may be averaged over a period not greater than one year.

(b) An application for a license or license amendment may include proposed limits higher than those specified in paragraph (a) of this section. The Agency will approve the proposed limits if the applicant demonstrates:

(1) That the applicant has made a reasonable effort to minimize the radioactivity contained in effluents to unrestricted areas; and,

(2) That it is not likely that radioactive material discharged in the effluent would result in the exposure of an individual to concentrations of radioactive material in air or water exceeding the limits specified in Appendix A, Table II of this part.

(c) An application for higher limits pursuant to paragraph (b) of this section shall include information demonstrating that the applicant has made a reasonable effort to minimize the radioactivity discharged in effluents to unrestricted areas, and shall include, as pertinent:

(1) Information as to flow rates, total volume of effluent, peak concentration of each radionuclide in the effluent, and concentration of each radionuclide in the effluent averaged over a period of one year at the point where the effluent leaves a stack, tube, pipe, or similar conduit;

(2) A description of the properties of the effluents, including:

(i) Chemical composition;

(ii) Physical characteristics, including suspended solids content in liquid effluents, and nature of gas or aerosol for air effluents;

(iii) The hydrogen ion concentrations (p^H) of liquid effluents; and,

(iv) The size range of particulates in effluents released into air.

(3) A description of the anticipated human occupancy in the unrestricted area where the highest concentration of radioactive material from the effluent is expected, and, in the case of a river or stream, a description of water uses downstream from the point of release of the effluent.

(4) Information as to the highest concentration of each radionuclide in an unrestricted area, including anticipated concentrations averaged over a period of one year:

(i) In air at any point of human occupancy; or,

(ii) In water at points of use downstream from the point of release of the effluent.

(5) The background concentration of radionuclides in the receiving river or stream prior to the release of liquid effluent.

(6) A description of the environmental monitoring equipment, including sensitivity of the system, and procedures and calculations to determine concentrations of radionuclides in the unrestricted area and possible reconcentrations of radionuclides.

(7) A description of the waste treatment facilities and procedures used to reduce the concentration of radionuclides in effluents prior to their release.

(d) For the purposes of this section, the concentration limits in Appendix A, Table II of this part shall apply at the boundary of the restricted area. The concentration of radioactive material discharged through a stack, pipe or similar conduit may be determined with respect to the point where the material leaves the conduit. If the conduit discharges within the restricted area, the concentration at the boundary may be determined by applying appropriate factors for dilution, dispersion, or decay between the point of discharge and the boundary.

(e) In addition to limiting concentrations in effluent streams, the Agency may limit quantities of radioactive materials released in air or water during a specified period of time if it appears that the daily intake of radioactive material from air, water, or food by a suitable sample of an exposed population group, averaged over a period not exceeding one year, would otherwise exceed the daily intake resulting from continuous exposure to air or water containing one-third the concentration of radioactive materials specified in Appendix A, Table II of this part.

(f) The provisions of this section do not apply to disposal of radioactive material into sanitary sewerage systems, which is governed by Section C.303.

Sec. C.107 Orders Requiring Furnishing of Bio-assay Services. Where necessary or desirable in order to aid in determining the extent of an individual's exposure to concentrations of radioactive material, the Agency may incorporate license provisions or issue an order requiring a licensee or registrant to make available to the individual appropriate bio-assay services and to furnish a copy of the reports of such services to the Agency.

PRECAUTIONARY PROCEDURES

Sec. C.201 Surveys. (a) As used in this part, "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.

(b) Each licensee or registrant shall make or cause to be made such survey as may be necessary for him to comply with this part. /2/

Sec. C.202 Personnel Monitoring. (a) Each licensee or registrant shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by:

(1) Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 25 percent of the applicable value specified in paragraph (a) of Section C.101.

(2) Each individual under 18 years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of 5 percent of the applicable value specified in paragraph (a) of Section C.101.

(3) Each individual who enters a high radiation area.

(b) (1) "Personnel monitoring equipment" means devices designed to be worn or carried by an individual for the purpose of measuring the dose received (e.g. film badges, pocket chambers, pocket dosimeters, film rings, etc.)

(2) "Radiation area" means any area, accessible to individuals, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirem or in any 5 consecutive days a dose in excess of 100 millirem.

(3) "High radiation area" means any area, accessible to individuals, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirem.

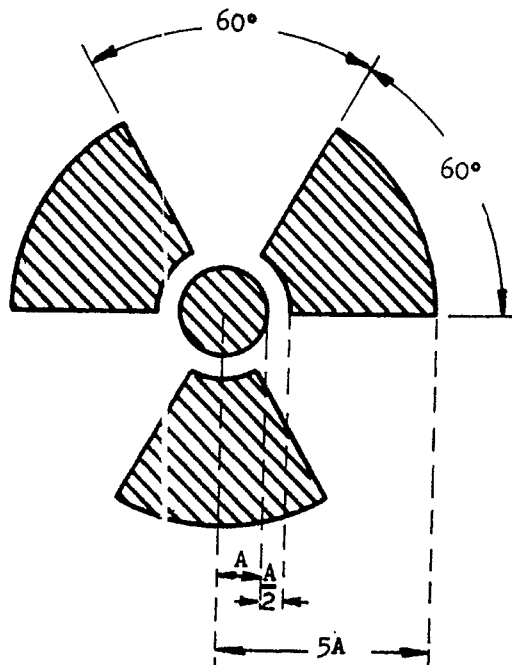
Sec. C.203 Caution Signs, Labels, and Signals.

(a) General (1) Except as otherwise authorized by the Agency, symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design.

/2/ The Agency may require licensees or registrants to perform or permit the Agency or its authorized representative to perform such reasonable tests as the Agency deems appropriate or necessary in the administration of these regulations (see Section B.72).

RADIATION SYMBOL

1. Cross-hatched area is to be magenta or purple.
2. Background is to be yellow.



(2) In addition to the contents of signs and labels prescribed in this section, a licensee or registrant may provide on or near such signs and labels any additional information which may be appropriate in aiding individuals to minimize exposure to radiation.

(b) Radiation Areas. Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION /3/

RADIATION AREA

(c) High Radiation Areas. (1) Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION /3/

HIGH RADIATION AREA

(2) Each high radiation area shall be equipped with a control device which shall either cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirem in one hour upon entry into the area or shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the licensee, registrant, or supervisor of the activity are made aware of the entry. In the case of a high radiation area established for a period of 30 days or less, such control device is not required.

/3/ Or "Danger".

(d) Airborne Radioactivity Areas. (1) As used in this part, "airborne radioactivity area" means (i) any room, enclosure, or operating area in which airborne radioactive material exists in concentrations in excess of the amounts specified in Appendix A, Table I, Column 1, of this part; or (ii) any room, enclosure, or operating area in which airborne radioactive material exists in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in Appendix A, Table I, Column 1, of this part.

(2) Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION /3/

AIRBORNE RADIOACTIVITY AREA

(e) Additional Requirements. (1) Each area or room in which any radioactive material, other than natural uranium or thorium, is used or stored in an amount exceeding 10 times the quantity of radioactive material specified in Appendix B of this part shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION /3/

RADIOACTIVE MATERIAL

(2) Each area or room in which natural uranium or thorium is used or stored in an amount exceeding one hundred times the quantity specified in Appendix B of this part shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words:

CAUTION /3/

RADIOACTIVE MATERIAL

(f) Containers. (1) Except as provided in subparagraph (3) of this paragraph, each container of radioactive material shall bear a durable, clearly visible label identifying the radioactive contents.

(2) A label required pursuant to subparagraph (1) of this paragraph shall bear the radiation caution symbol and the words:

CAUTION /3/

RADIOACTIVE MATERIAL

It shall also provide sufficient information /4/ to permit individuals handling or using the containers, or working in the vicinity thereof, to take precautions to avoid or minimize exposures.

/3/ Or "Danger"

/4/ As appropriate, the information will include radiation levels, kinds of material, estimate of activity, date for which activity is estimated, etc.

(3) Notwithstanding the provisions of subparagraph (1) of this paragraph, labeling is not required:

(i) For containers that do not contain radioactive materials in quantities greater than the applicable quantities listed in Appendix B of this part;

(ii) For containers containing only natural uranium or thorium in quantities no greater than ten times the applicable quantities listed in Appendix B of this part;

(iii) For containers that do not contain radioactive materials in concentrations greater than the applicable concentrations listed in Column 2, Table 1, Appendix A of this part;

(iv) For containers when they are attended by an individual who takes the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established by the regulations in this part;

(v) For containers when they are in transport and packaged and labeled in accordance with regulations published by the U. S. Department of Transportation;

(vi) For containers which are accessible /2/ only to individuals authorized to handle or use them, or to work in the vicinity thereof, provided that the contents are identified to such individuals by a readily available written record; and

(vii) For manufacturing and process equipment such as piping and tanks.

(g) All radiation machines shall be labeled in a manner which cautions individuals that radiation is produced when the machine is operated.

/2/ For example, containers in locations such as water filled canals, storage vaults, or hot cells.

Sec. C.204 Exceptions from Posting Requirements. Notwithstanding the provisions of Section C.203,

(a) A room or area is not required to be posted with a caution sign because of the presence of a sealed source, provided the radiation level twelve inches from the surface of the source container or housing does not exceed five millirem per hour.

(b) Rooms or other areas in hospitals are not required to be posted with caution signs because of the presence of patients containing radioactive material, provided that there are personnel in attendance who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in this part.

(c) Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight hours provided that (1) the materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in this part, and (2) such area or room is subject to the licensee's or registrant's control.

(d) A room or other area is not required to be posted with a caution sign because of the presence of radioactive materials packaged and labeled in accordance with regulations published by the U. S. Department of Transportation.

Sec. C.205 Instruction of Personnel; Posting of Notice to Employees. (a) Each licensee or registrant shall inform individuals working in or frequenting any portion of a restricted area of the occurrence of radiation or sources of radiation in such portions of the restricted area; shall instruct such individuals in the safety problems associated with exposure to such sources of radiation and in precautions or procedures to minimize exposure; shall instruct such individuals in the applicable provisions of Agency regulations and licenses for the protection of personnel from exposures to radiation or radioactive materials; and shall advise such individual of reports of radiation exposure which those individuals may request pursuant to this part.

(b) Each licensee or registrant shall post a current copy of this PART, a copy of the license or Notification of Registration, and a copy of operating procedures applicable to work under the license or registration conspicuously in a sufficient number of places in every establishment where employees are employed in activities licensed or registered pursuant to Part B, to permit them to observe a copy on the way to or from their place of employment, or shall keep such documents readily available for examination by an employee upon request.

(c) Each licensee or registrant shall conspicuously post Agency Form Rad H-101 "Notice to Employees", in a sufficient number of places in every establishment where employees are employed in activities licensed or registered, pursuant to Part B, by the Agency to permit employees working in or frequenting any portion of a restricted area to observe a copy on the way to or from their place of employment.

NOTE: Copies of Agency Form Rad H-101 may be obtained by writing to the Agency.

Sec. C.20. Storage of Sources of Radiation. Sources of radiation shall be secured against unauthorized removal from the place of storage.

WASTE DISPOSAL

Sec. C.301 General Requirement. No licensee shall dispose of any radioactive material except:

- (a) By transfer to an authorized recipient as provided in Part B, or
- (b) As authorized pursuant to Sections C.302, C.303, C.304, or C.106.

Sec. C.302 Method of Obtaining Approval of Proposed Disposal Procedures. Any person may apply to the Agency for approval of proposed procedures to dispose of radioactive material in a manner not otherwise authorized in this part. Each application shall include a description of the radioactive material, including the quantities and kinds of radioactive material and the levels of radioactivity involved, and the proposed manner and conditions of disposal. The application, where appropriate, should also include an analysis and evaluation of pertinent information as to the nature of environment, including topographical, geological, meteorological, and hydrological characteristics, usage of ground and surface waters in the general area; the nature and location of other potentially affected facilities; and procedures to be observed to minimize the risk of unexpected or hazardous exposures. The Agency will not approve any application for a license to receive radioactive material from other persons for disposal on land not owned by a State or the Federal Government.

Sec. C.303 Disposal by Release Into Sanitary Sewerage Systems. No licensee shall discharge radioactive material into a sanitary sewerage system unless:

- (a) It is readily soluble or dispersible in water; and
- (b) The quantity of any radioactive material released into the system by the licensee in any one day does not exceed the larger of subparagraphs (1) or (2) of this paragraph:

(1) The quantity which, if diluted by the average daily quantity of sewage released into the sewer by the licensee, will result in an average concentration not greater than the limits specified in Appendix A, Table I, Column 2, of this part: or

(2) Ten times the quantity of such material specified in Appendix B of this part; and

(c) The quantity of any radioactive material released in any one month, if diluted by the average monthly quantity of water released by the licensee, will not result in an average concentration exceeding the limits specified in Appendix A, Table I, Column 2, of this part; and

(d) The gross quantity of radioactive material released into the sewerage system by the licensee does not exceed one curie per year.

Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in this section.

Sec. C.304 Disposal by Burial in Soil. No licensee shall dispose of radioactive material by burial in soil unless:

(a) The total quantity of radioactive materials buried at any one location and time does not exceed, at the time of burial, 1,000 times the amount specified in Appendix B of this part; and

(b) Burial is at a minimum depth of four feet; and

(c) Successive burials are separated by distances of at least six feet and not more than 12 burials are made in any year.

Sec. C.305 Disposal by Incineration. No licensee shall incinerate radioactive material for the purpose of disposal or preparation for disposal except as specifically approved by the Agency pursuant to Sections C.106 and C.302.

RECORDS, REPORTS, AND NOTIFICATION

Sec. C.401 Records of Surveys, Radiation Monitoring, and Disposal.

(a) Each licensee or registrant shall maintain records showing the radiation exposures of all individuals for whom personnel monitoring is required under Section C.202 of this part. Such records shall be kept on Agency Form Rad H-103, in accordance with the instructions contained in that form, or on clear and legible records containing all the information required by Agency Form Rad H-103. The doses entered on the forms or records shall be for periods of time not exceeding one calendar quarter.

(b) Each licensee or registrant shall maintain records showing the results of surveys required by Section C.201(b), and disposals made under Sections C.302, C.303, and C.304.

(c) Records of individual exposure to radiation and to radioactive material which must be maintained pursuant to the provisions of paragraph (a) of this section and records of bioassays, including results of whole body counting examinations, made pursuant to Section C.107 shall be preserved permanently or until the Agency authorizes their disposal. Records which must be maintained pursuant to this part may be maintained in the form of microfilms.

(d) The discontinuance of a radiation installation, or curtailment of certain activities, does not relieve the licensee or registrant of responsibility for retaining all records required by this section. A licensee or registrant may, however, request the Agency to accept such records. The acceptance of the records by the Agency then relieves the licensee or registrant of subsequent responsibility only in respect to their preservation as required by this section.

Sec. C.402 Reports of Theft or Loss of Sources of Radiation. Each licensee shall report by telephone and telegraph to the Agency the theft or loss of any radioactive material in excess of quantity(ies) listed in Schedule B, PART B, immediately after such occurrence becomes known.

Sec. C.403 Notification of Incidents. (a) Immediate Notification. Each licensee or registrant shall immediately notify the Agency by telephone and telegraph of any incident involving any source of radiation possessed by him and which may have caused or threatens to cause:

(1) Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual of 150 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5000 times the limits specified for such materials in Appendix A, Table II; or

(3) A loss of one working week or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$100,000.

(b) Twenty-four Hour Notification. Each licensee or registrant shall within 24 hours notify the Agency by telephone and telegraph of any incident involving any source of radiation possessed by him and which may have caused or threatens to cause:

(1) Exposure of the whole body of any individual to 5 rems or more of radiation; exposure of the skin of the whole body of any individual to 30 rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 rems or more of radiation; or

(2) The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in Appendix A, Table II; or

(3) A loss of one day or more of the operation of any facilities affected; or

(4) Damage to property in excess of \$1,000.

(c) Names of Exposed Individuals. Any report filed with the Agency pursuant to Section C.403(a) or Section C.403(b) shall be submitted in such a manner that names of individuals who are known or may be believed to have received exposure to radiation will be stated in a separate part of the report.

Sec. C.404 Report to Former Employees and Others of Exposure to Radiation.

(a) A licensee or registrant, at the request of any individual formerly employed or associated with him (i.e., student, craftsman, etc.), shall furnish to such individual a report of his exposure to radiation as shown in records maintained pursuant to Section C.401(a). Such report shall be furnished within 30 days from the time the request is made; shall cover each calendar quarter of the individual's employment or association involving exposures to radiation, or such lesser period as may be requested by the individual. The report shall also include the results of any calculations and analyses of radioactive material deposited in the body of the individual and made pursuant to the provisions of Section C.107. The report shall be in writing and contain the following statement:

"This report is furnished to you under the provisions of the State Board of Health regulations entitled 'North Carolina Regulations for Protection Against Radiation'. You should preserve this report for future reference."

(b) The individual's request should include appropriate identifying data, such as social security number and dates and locations of employment or association.

Sec. C.405 Reports of Overexposures and Excessive Levels and Concentrations.

(a) In addition to any notification required by Section C.403, each licensee or registrant shall make a report in writing within 30 days to the Agency of (1) each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit as set forth in this part or as otherwise approved by the Agency; (2) any incident for which notification is required by Section C.403; and (3) levels of radiation or concentrations of radioactive material (not involving excessive exposure of any individual) in an unrestricted area in excess of ten times any applicable limit as set forth in this part or as otherwise approved by the Agency. Each report required under this paragraph shall describe the extent of exposure of individual to radiation or to radioactive material; levels of radiation and concentrations of radioactive material involved; the cause of the exposure, levels, or concentrations; and corrective steps taken or planned to assure against a recurrence.

(b) In any case where a licensee or registrant is required pursuant to the provisions of this section to report to the Agency any exposure of an individual to radiation or to concentrations of radioactive material, the licensee or registrant shall not later than the making of such report to the Agency also notify such individual of the nature and extent of exposure. Such notice shall be in writing and shall contain the following statement:

"This report is furnished to you under the provisions of the State Board of Health regulations entitled 'North Carolina Regulations for Protection Against Radiation'. You should preserve this report for future reference."

Sec. C.406 Notice to Employees and Others of Exposure to Radiation. Each licensee or registrant, at the request of any individual employed or associated with him, shall advise such individual annually of the individual's exposure to radiation as shown in records maintained by the licensee or registrant pursuant to Section C.401(a).

Sec. C.407 Vacating Premises. Each specific licensee shall, no less than thirty (30) days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of his activities, notify the Agency in writing of intent to vacate.



C-12a

NOTE: Pages C-13a to C-27d effective January 1, 1967, AMENDMENTS replace Pages C-13 to C-27, inclusive, North Carolina Regulations for Protection Against Radiation, effective August 1, 1964 (former values available upon request to the Agency).

PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotopes /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Actinium (89)-----	Ac 227	S	2X10 ⁻¹²	6X10 ⁻⁵	8X10 ⁻¹⁴	2X10 ⁻¹¹
		I	3X10 ⁻¹¹	9X10 ⁻³	9X10 ⁻¹³	3X10 ⁻⁴
	Ac 228	S	8X10 ⁻⁸	3X10 ⁻³	3X10 ⁻⁹	9X10 ⁻⁵
Americium (95)-----	Am 241	I	2X10 ⁻⁸	3X10 ⁻³	6X10 ⁻¹⁰	9X10 ⁻⁵
		S	6X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
	Am 242 m	I	1X10 ⁻¹⁰	8X10 ⁻⁴	4X10 ⁻¹²	2X10 ⁻⁵
		S	6X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
	Am 242	I	3X10 ⁻¹⁰	3X10 ⁻³	9X10 ⁻¹²	9X10 ⁻⁵
		S	4X10 ⁻⁸	4X10 ⁻³	1X10 ⁻⁹	1X10 ⁻⁴
	Am 243	I	5X10 ⁻⁸	4X10 ⁻³	2X10 ⁻⁹	1X10 ⁻⁴
		S	6X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
	Am 244	I	1X10 ⁻¹⁰	8X10 ⁻⁴	4X10 ⁻¹²	3X10 ⁻⁵
		S	4X10 ⁻⁶	1X10 ⁻¹	1X10 ⁻⁷	5X10 ⁻³
Antimony (51)-----	Sb 122	I	2X10 ⁻⁵	1X10 ⁻¹	8X10 ⁻⁷	5X10 ⁻³
		S	2X10 ⁻⁷	8X10 ⁻⁴	6X10 ⁻⁹	3X10 ⁻⁵
	Sb 124	I	1X10 ⁻⁷	8X10 ⁻⁴	5X10 ⁻⁹	3X10 ⁻⁵
		S	2X10 ⁻⁷	7X10 ⁻⁴	5X10 ⁻⁹	2X10 ⁻⁵
	Sb 125	I	2X10 ⁻⁸	7X10 ⁻⁴	7X10 ⁻¹⁰	2X10 ⁻⁵
		S	2X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
Argon (18)-----	A 37	I	3X10 ⁻⁸	3X10 ⁻³	9X10 ⁻¹⁰	1X10 ⁻⁴
		Sub	6X10 ⁻³	-----	1X10 ⁻⁴	-----
Arsenic (33)-----	As 73	I	2X10 ⁻⁶	-----	4X10 ⁻⁸	-----
		Sub	2X10 ⁻⁶	-----	4X10 ⁻⁸	-----
	As 74	I	1X10 ⁻²	1X10 ⁻²	7X10 ⁻⁸	5X10 ⁻⁴
		S	4X10 ⁻⁷	1X10 ⁻²	1X10 ⁻⁸	5X10 ⁻⁴
	As 76	I	3X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	5X10 ⁻⁵
		S	1X10 ⁻⁷	2X10 ⁻³	4X10 ⁻⁹	5X10 ⁻⁵
	As 77	I	1X10 ⁻⁷	6X10 ⁻⁴	4X10 ⁻⁹	2X10 ⁻⁵
		S	1X10 ⁻⁷	6X10 ⁻⁴	3X10 ⁻⁹	2X10 ⁻⁵
	As 77	I	5X10 ⁻⁷	2X10 ⁻³	2X10 ⁻⁸	8X10 ⁻⁵
		S	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	8X10 ⁻⁵
Astatine (85)-----	At 211	I	7X10 ⁻⁹	5X10 ⁻⁵	2X10 ⁻¹⁰	2X10 ⁻⁵
		S	3X10 ⁻⁸	2X10 ⁻³	1X10 ⁻⁹	7X10 ⁻⁵
Barium (56)-----	Ba 131	I	1X10 ⁻⁶	5X10 ⁻³	4X10 ⁻⁸	2X10 ⁻⁴
		S	1X10 ⁻⁷	5X10 ⁻³	1X10 ⁻⁸	2X10 ⁻⁴
	Ba 140	I	4X10 ⁻⁷	5X10 ⁻³	1X10 ⁻⁸	2X10 ⁻⁴
		S	1X10 ⁻⁷	8X10 ⁻⁴	4X10 ⁻⁹	3X10 ⁻⁵
		I	4X10 ⁻⁸	7X10 ⁻⁴	1X10 ⁻⁹	2X10 ⁻⁵

/1/ See notes at end of table.

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope ^{/1/}	Table I		Table II	
		Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Berkelium (97)-----	Bk 249	S	9×10^{-10}	2×10^{-2}	3×10^{-11}
		I	1×10^{-7}	2×10^{-2}	6×10^{-4}
	Bk 250	S	1×10^{-7}	6×10^{-3}	5×10^{-9}
		I	1×10^{-6}	6×10^{-3}	2×10^{-4}
Beryllium (4)-----	Be 7	S	6×10^{-6}	5×10^{-2}	4×10^{-7}
		I	1×10^{-6}	2×10^{-8}	2×10^{-3}
Bismuth (83)-----	Bi 206	S	2×10^{-7}	1×10^{-3}	5×10^{-9}
		I	1×10^{-7}	1×10^{-3}	4×10^{-5}
	Bi 207	S	2×10^{-7}	2×10^{-3}	5×10^{-9}
		I	1×10^{-8}	2×10^{-3}	6×10^{-5}
	Bi 210	S	6×10^{-9}	1×10^{-3}	5×10^{-10}
		I	6×10^{-9}	2×10^{-10}	6×10^{-5}
	Bi 212	S	1×10^{-7}	1×10^{-2}	2×10^{-10}
		I	2×10^{-7}	3×10^{-9}	4×10^{-4}
Bromine (35)-----	Br 82	S	1×10^{-6}	1×10^{-3}	7×10^{-9}
		I	2×10^{-7}	8×10^{-3}	4×10^{-4}
Cadmium (48)-----	Cd 109	S	5×10^{-8}	1×10^{-3}	4×10^{-9}
		I	7×10^{-8}	5×10^{-3}	3×10^{-5}
	Cd 115 m	S	4×10^{-8}	5×10^{-3}	2×10^{-9}
		I	4×10^{-8}	7×10^{-4}	2×10^{-4}
	Cd 115	S	2×10^{-7}	1×10^{-3}	1×10^{-9}
		I	2×10^{-7}	1×10^{-3}	3×10^{-5}
	Ca 45	S	3×10^{-8}	1×10^{-3}	8×10^{-9}
		I	1×10^{-7}	6×10^{-9}	3×10^{-5}
Calcium (20)-----	Ca 47	S	2×10^{-7}	1×10^{-3}	1×10^{-9}
		I	2×10^{-7}	5×10^{-3}	9×10^{-6}
	Ca 47	S	2×10^{-7}	1×10^{-3}	4×10^{-9}
		I	2×10^{-7}	6×10^{-9}	2×10^{-4}
Californium (98)-----	Cf 249	S	2×10^{-12}	1×10^{-4}	6×10^{-9}
		I	1×10^{-10}	1×10^{-4}	5×10^{-14}
	Cf 250	S	5×10^{-12}	4×10^{-4}	3×10^{-12}
		I	1×10^{-10}	7×10^{-4}	2×10^{-13}
	Cf 251	S	2×10^{-12}	1×10^{-4}	3×10^{-12}
		I	1×10^{-10}	8×10^{-4}	6×10^{-14}
	Cf 252	S	2×10^{-11}	7×10^{-4}	3×10^{-12}
		I	1×10^{-10}	7×10^{-4}	4×10^{-12}
	Cf 253	S	8×10^{-10}	4×10^{-3}	3×10^{-11}
		I	8×10^{-10}	4×10^{-3}	3×10^{-11}
		S	8×10^{-10}	4×10^{-3}	3×10^{-11}
		I	8×10^{-10}	4×10^{-3}	3×10^{-11}

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/	Table I		Table II	
		Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Carbon (6)	Cf 254	S	5×10^{-12}	4×10^{-6}	2×10^{-13}
		I	5×10^{-12}	4×10^{-6}	2×10^{-13}
	C 14	S	4×10^{-6}	2×10^{-2}	1×10^{-7}
	(CO ₂)	Sub	5×10^{-5}	-----	-----
Cerium (58)	Ce 141	S	4×10^{-7}	3×10^{-3}	2×10^{-8}
		I	2×10^{-7}	3×10^{-3}	5×10^{-9}
	Ce 143	S	3×10^{-7}	1×10^{-3}	9×10^{-9}
		I	2×10^{-7}	1×10^{-3}	7×10^{-9}
Cesium (55)	Ce 144	S	1×10^{-8}	3×10^{-4}	3×10^{-10}
		I	6×10^{-9}	3×10^{-4}	2×10^{-10}
	Cs 131	S	1×10^{-5}	7×10^{-2}	4×10^{-7}
		I	3×10^{-6}	3×10^{-2}	1×10^{-7}
	Cs 134 m	S	4×10^{-5}	2×10^{-1}	1×10^{-7}
		I	6×10^{-6}	3×10^{-2}	2×10^{-7}
	Cs 134	S	4×10^{-8}	3×10^{-4}	1×10^{-9}
		I	1×10^{-8}	1×10^{-3}	4×10^{-10}
	Cs 135	S	5×10^{-7}	3×10^{-3}	2×10^{-8}
		I	9×10^{-8}	7×10^{-3}	3×10^{-9}
	Cs 136	S	4×10^{-7}	2×10^{-3}	1×10^{-8}
		I	2×10^{-7}	2×10^{-3}	1×10^{-9}
	Cs 137	S	6×10^{-8}	4×10^{-4}	2×10^{-9}
		I	1×10^{-8}	1×10^{-3}	5×10^{-10}
Chlorine (17)	Cl 36	S	4×10^{-7}	2×10^{-3}	1×10^{-8}
		I	2×10^{-8}	2×10^{-3}	1×10^{-10}
	Cl 38	S	3×10^{-7}	1×10^{-2}	9×10^{-8}
		I	2×10^{-7}	1×10^{-2}	7×10^{-8}
Chromium (24)	Cr 51	S	1×10^{-5}	5×10^{-2}	4×10^{-7}
		I	2×10^{-5}	5×10^{-2}	8×10^{-8}
Cobalt (27)	Co 57	S	3×10^{-7}	2×10^{-2}	1×10^{-9}
		I	2×10^{-7}	1×10^{-2}	6×10^{-9}
	Co 58 m	S	2×10^{-5}	8×10^{-2}	5×10^{-7}
		I	9×10^{-6}	1×10^{-2}	3×10^{-7}
	Co 58	S	8×10^{-7}	4×10^{-3}	3×10^{-8}
		I	5×10^{-8}	3×10^{-3}	2×10^{-9}
	Co 60	S	3×10^{-7}	1×10^{-3}	1×10^{-8}
		I	9×10^{-9}	1×10^{-3}	3×10^{-10}

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Copper (29)-----	Cu 64	S	2X10 ⁻⁶	1X10 ⁻²	7X10 ⁻⁸	3X10 ⁻⁴
		I	1X10 ⁻⁶	6X10 ⁻³	4X10 ⁻⁸	2X10 ⁻⁴
Curium (96)-----	Cm 242	S	1X10 ⁻¹⁰	7X10 ⁻⁴	4X10 ⁻¹²	2X10 ⁻⁵
		I	2X10 ⁻¹⁰	7X10 ⁻⁴	6X10 ⁻¹²	3X10 ⁻⁵
	Cm 243	S	6X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	5X10 ⁻⁶
		I	1X10 ⁻¹⁰	7X10 ⁻⁴	3X10 ⁻¹²	2X10 ⁻⁵
	Cm 244	S	9X10 ⁻¹²	2X10 ⁻⁴	3X10 ⁻¹³	7X10 ⁻⁶
		I	1X10 ⁻¹⁰	8X10 ⁻⁴	3X10 ⁻¹²	3X10 ⁻⁵
	Cm 245	S	5X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
		I	1X10 ⁻¹⁰	8X10 ⁻⁴	4X10 ⁻¹²	3X10 ⁻⁵
	Cm 246	S	5X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
		I	1X10 ⁻¹⁰	8X10 ⁻⁴	4X10 ⁻¹²	3X10 ⁻⁵
	Cm 247	S	5X10 ⁻¹²	1X10 ⁻⁴	2X10 ⁻¹³	4X10 ⁻⁶
		I	1X10 ⁻¹⁰	6X10 ⁻⁴	4X10 ⁻¹²	2X10 ⁻⁵
	Cm 248	S	6X10 ⁻¹³	1X10 ⁻⁵	2X10 ⁻¹⁴	4X10 ⁻⁷
		I	1X10 ⁻¹¹	4X10 ⁻⁵	4X10 ⁻¹³	1X10 ⁻⁶
	Cm 249	S	1X10 ⁻⁵	6X10 ⁻²	4X10 ⁻⁷	2X10 ⁻³
		I	1X10 ⁻⁵	6X10 ⁻²	4X10 ⁻⁷	2X10 ⁻³
Dysprosium (66)-----	Dy 165	S	3X10 ⁻⁶	1X10 ⁻²	9X10 ⁻⁸	4X10 ⁻⁴
		I	2X10 ⁻⁶	1X10 ⁻²	7X10 ⁻⁸	4X10 ⁻⁴
	Dy 166	S	2X10 ⁻⁷	1X10 ⁻³	8X10 ⁻⁹	4X10 ⁻⁵
		I	2X10 ⁻⁷	1X10 ⁻³	7X10 ⁻⁹	4X10 ⁻⁵
Einsteinium (99)-----	Es 253	S	8X10 ⁻¹⁰	7X10 ⁻⁴	3X10 ⁻¹¹	2X10 ⁻⁵
		I	6X10 ⁻¹⁰	7X10 ⁻⁴	2X10 ⁻¹¹	2X10 ⁻⁵
	Es 254 m	S	5X10 ⁻⁹	5X10 ⁻⁴	2X10 ⁻¹⁰	2X10 ⁻⁵
		I	6X10 ⁻⁹	5X10 ⁻⁴	2X10 ⁻¹⁰	2X10 ⁻⁵
	Es 254	S	2X10 ⁻¹¹	4X10 ⁻⁴	6X10 ⁻¹³	1X10 ⁻⁵
		I	1X10 ⁻¹⁰	4X10 ⁻⁴	4X10 ⁻¹²	1X10 ⁻⁵
	Es 255	S	5X10 ⁻¹⁰	8X10 ⁻⁴	2X10 ⁻¹¹	3X10 ⁻⁵
		I	4X10 ⁻¹⁰	8X10 ⁻⁴	1X10 ⁻¹¹	3X10 ⁻⁵
Erbium (68)-----	Er 169	S	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	9X10 ⁻⁵
		I	4X10 ⁻⁷	3X10 ⁻³	1X10 ⁻⁸	9X10 ⁻⁵
	Er 171	S	7X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
		I	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
Europium (63)-----	Eu 152	S	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	6X10 ⁻⁵
	(T/2=9.2 hrs)	I	3X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	6X10 ⁻⁵

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/	Table I		Table II	
		Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Fermium (100)-----	Eu 152	S	1X10 ⁻⁸	2X10 ⁻³	4X10 ⁻¹⁰
	(T/2=13 yrs)	I	2X10 ⁻⁸	2X10 ⁻³	5X10 ⁻¹⁰
	Eu 154	S	4X10 ⁻⁹	6X10 ⁻⁴	1X10 ⁻¹⁰
		I	7X10 ⁻⁹	6X10 ⁻⁴	2X10 ⁻¹⁰
	Eu 155	S	9X10 ⁻⁸	6X10 ⁻³	3X10 ⁻⁹
		I	7X10 ⁻⁸	6X10 ⁻³	3X10 ⁻⁹
	Fm 254	S	6X10 ⁻⁸	4X10 ⁻³	2X10 ⁻⁹
		I	7X10 ⁻⁸	4X10 ⁻³	1X10 ⁻⁹
	Fm 255	S	2X10 ⁻⁸	1X10 ⁻³	5X10 ⁻¹⁰
		I	1X10 ⁻⁸	1X10 ⁻³	4X10 ⁻¹⁰
Flourine (9)-----	Fm 256	S	3X10 ⁻⁹	3X10 ⁻⁵	1X10 ⁻¹⁰
		I	2X10 ⁻⁹	3X10 ⁻⁵	1X10 ⁻¹¹
	F 18	S	5X10 ⁻⁶	2X10 ⁻²	2X10 ⁻⁷
Gadolinium (64)-----		I	3X10 ⁻⁶	1X10 ⁻²	2X10 ⁻⁸
	Gd 153	S	2X10 ⁻⁷	6X10 ⁻³	8X10 ⁻⁹
		I	9X10 ⁻⁷	6X10 ⁻³	3X10 ⁻⁹
Gallium (31)-----	Gd 159	S	5X10 ⁻⁷	2X10 ⁻³	2X10 ⁻⁸
		I	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸
	Ga 72	S	2X10 ⁻⁷	1X10 ⁻³	8X10 ⁻⁹
Germanium (32)-----		I	2X10 ⁻⁷	1X10 ⁻³	6X10 ⁻⁹
	Ge 71	S	1X10 ⁻⁵	5X10 ⁻²	4X10 ⁻⁷
		I	6X10 ⁻⁶	5X10 ⁻²	2X10 ⁻⁷
Gold (79)-----	Au 196	S	1X10 ⁻⁶	5X10 ⁻³	4X10 ⁻⁸
		I	6X10 ⁻⁷	4X10 ⁻³	2X10 ⁻⁸
	Au 198	S	3X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸
		I	2X10 ⁻⁷	1X10 ⁻³	8X10 ⁻⁹
	Au 199	S	1X10 ⁻⁶	5X10 ⁻³	4X10 ⁻⁸
Hafnium (72)-----		I	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸
	Hf 181	S	4X10 ⁻⁸	2X10 ⁻³	1X10 ⁻⁹
		I	7X10 ⁻⁸	2X10 ⁻³	3X10 ⁻⁹
Holmium (67)-----	Ho 166	S	2X10 ⁻⁷	9X10 ⁻⁴	7X10 ⁻⁹
		I	2X10 ⁻⁷	9X10 ⁻⁴	6X10 ⁻⁹
	H 3	S	5X10 ⁻⁶	1X10 ⁻¹	2X10 ⁻⁷
Hydrogen (1)-----		I	5X10 ⁻⁶	1X10 ⁻¹	2X10 ⁻⁷
		Sub	2X10 ⁻³	-----	4X10 ⁻⁵
Indium (49)-----	In 113 m	S	8X10 ⁻⁶	4X10 ⁻²	3X10 ⁻⁷
		I	7X10 ⁻⁶	4X10 ⁻²	2X10 ⁻⁷
					1X10 ⁻³

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APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Iodine (53)-----	In 114 m	S	1X10 ⁻⁷	5X10 ⁻⁴	4X10 ⁻⁹	2X10 ⁻⁵
		I	2X10 ⁻⁸	5X10 ⁻⁴	7X10 ⁻¹⁰	2X10 ⁻⁵
	In 115 m	S	2X10 ⁻⁶	1X10 ⁻²	8X10 ⁻⁸	4X10 ⁻⁴
		I	2X10 ⁻⁶	1X10 ⁻²	6X10 ⁻⁸	4X10 ⁻⁴
	In 115	S	2X10 ⁻⁷	3X10 ⁻³	9X10 ⁻⁹	9X10 ⁻⁵
		I	3X10 ⁻⁸	3X10 ⁻³	1X10 ⁻⁹	9X10 ⁻⁵
	I 125	S	5X10 ⁻⁹	4X10 ⁻⁵	8X10 ⁻¹¹	2X10 ⁻⁷
		I	2X10 ⁻⁷	6X10 ⁻³	6X10 ⁻⁹	2X10 ⁻⁴
	I 126	S	8X10 ⁻⁹	5X10 ⁻⁵	9X10 ⁻¹¹	3X10 ⁻⁷
		I	3X10 ⁻⁷	3X10 ⁻³	1X10 ⁻⁸	9X10 ⁻⁵
	I 129	S	2X10 ⁻⁹	1X10 ⁻⁵	1X10 ⁻¹¹	6X10 ⁻⁸
		I	7X10 ⁻⁸	6X10 ⁻³	2X10 ⁻⁹	6X10 ⁻⁴
	I 131	S	9X10 ⁻⁹	6X10 ⁻⁵	2X10 ⁻¹⁰	2X10 ⁻⁷
		I	3X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	3X10 ⁻⁵
	I 132	S	2X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁹	6X10 ⁻⁶
		I	9X10 ⁻⁷	5X10 ⁻³	3X10 ⁻⁸	8X10 ⁻⁴
	I 133	S	3X10 ⁻⁸	2X10 ⁻⁴	3X10 ⁻¹⁰	2X10 ⁻⁶
		I	2X10 ⁻⁷	1X10 ⁻³	4X10 ⁻⁹	1X10 ⁻⁵
	I 134	S	5X10 ⁻⁷	4X10 ⁻³	7X10 ⁻⁹	4X10 ⁻⁵
		I	3X10 ⁻⁶	2X10 ⁻²	6X10 ⁻⁷	2X10 ⁻⁴
Iridium (77)-----	I 135	S	1X10 ⁻⁷	7X10 ⁻⁴	1X10 ⁻⁹	6X10 ⁻⁶
		I	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	4X10 ⁻⁵
	Ir 190	S	1X10 ⁻⁶	6X10 ⁻³	1X10 ⁻⁸	7X10 ⁻⁴
		I	4X10 ⁻⁷	5X10 ⁻³	4X10 ⁻⁸	2X10 ⁻⁴
	Ir 192	S	1X10 ⁻⁷	1X10 ⁻³	1X10 ⁻⁹	2X10 ⁻⁵
Iron (26)-----		I	3X10 ⁻⁸	1X10 ⁻³	4X10 ⁻¹⁰	4X10 ⁻⁵
	Ir 194	S	2X10 ⁻⁷	1X10 ⁻³	9X10 ⁻⁹	4X10 ⁻⁵
		I	2X10 ⁻⁷	9X10 ⁻⁴	8X10 ⁻⁹	3X10 ⁻⁵
	Fe 55	S	9X10 ⁻⁷	2X10 ⁻²	5X10 ⁻⁸	3X10 ⁻⁴
		I	1X10 ⁻⁶	7X10 ⁻²	3X10 ⁻⁸	8X10 ⁻³
Krypton (36)-----	Fe 59	S	1X10 ⁻⁷	2X10 ⁻³	3X10 ⁻⁹	2X10 ⁻⁵
		I	5X10 ⁻⁸	2X10 ⁻³	5X10 ⁻⁹	6X10 ⁻⁵
	Kr 85 m	Sub	6X10 ⁻⁶	-----	2X10 ⁻⁷	5X10 ⁻⁵
	Kr 85	Sub	1X10 ⁻⁵	-----	1X10 ⁻⁷	-----
	Kr 87	Sub	1X10 ⁻⁶	-----	3X10 ⁻⁸	-----
	Kr 88	Sub	1X10 ⁻⁶	-----	2X10 ⁻⁸	-----

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Lanthanum (57)-----	La 140	S	2X10 ⁻⁷	7X10 ⁻⁴	5X10 ⁻⁹	2X10 ⁻⁵
		I	1X10 ⁻⁷	7X10 ⁻⁴	4X10 ⁻⁹	2X10 ⁻⁵
Lead (82)-----	Pb 203	S	3X10 ⁻⁶	1X10 ⁻²	9X10 ⁻⁸	4X10 ⁻⁴
		I	2X10 ⁻⁶	1X10 ⁻²	6X10 ⁻⁸	4X10 ⁻⁴
	Pb 210	S	1X10 ⁻¹⁰	4X10 ⁻⁶	4X10 ⁻¹²	1X10 ⁻⁷
		I	2X10 ⁻¹⁰	5X10 ⁻³	8X10 ⁻¹²	2X10 ⁻⁴
	Pb 212	S	2X10 ⁻⁸	6X10 ⁻⁴	6X10 ⁻¹⁰	2X10 ⁻⁵
		I	2X10 ⁻⁸	5X10 ⁻⁴	7X10 ⁻¹⁰	2X10 ⁻⁵
Lutetium (71)-----	Lu 177	S	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
		I	5X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
Manganese (25)-----	Mn 52	S	2X10 ⁻⁷	1X10 ⁻³	7X10 ⁻⁹	3X10 ⁻⁵
		I	1X10 ⁻⁷	9X10 ⁻⁴	5X10 ⁻⁹	3X10 ⁻⁵
	Mn 54	S	4X10 ⁻⁷	4X10 ⁻³	1X10 ⁻⁹	1X10 ⁻⁴
		I	4X10 ⁻⁸	3X10 ⁻³	1X10 ⁻⁹	1X10 ⁻⁴
	Mn 56	S	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
		I	5X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
Mercury (80)-----	Hg 197 m	S	7X10 ⁻⁷	6X10 ⁻³	3X10 ⁻⁸	2X10 ⁻⁴
		I	8X10 ⁻⁷	5X10 ⁻³	3X10 ⁻⁸	2X10 ⁻⁴
	Hg 197	S	1X10 ⁻⁶	9X10 ⁻³	4X10 ⁻⁸	3X10 ⁻⁴
		I	3X10 ⁻⁶	1X10 ⁻²	9X10 ⁻⁸	5X10 ⁻⁴
	Hg 203	S	7X10 ⁻⁸	5X10 ⁻⁴	2X10 ⁻⁹	2X10 ⁻⁵
		I	1X10 ⁻⁷	3X10 ⁻³	4X10 ⁻⁹	1X10 ⁻⁴
Molybdenum (42)-----	Mo 99	S	7X10 ⁻⁷	5X10 ⁻³	3X10 ⁻⁸	2X10 ⁻⁴
		I	2X10 ⁻⁷	1X10 ⁻³	7X10 ⁻⁹	4X10 ⁻⁵
Neodymium (60)-----	Nd 144	S	8X10 ⁻¹¹	2X10 ⁻³	3X10 ⁻¹²	7X10 ⁻⁵
		I	3X10 ⁻¹⁰	2X10 ⁻³	1X10 ⁻¹¹	8X10 ⁻⁵
	Nd 147	S	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	6X10 ⁻⁵
		I	2X10 ⁻⁷	2X10 ⁻³	8X10 ⁻⁹	6X10 ⁻⁵
	Nd 149	S	2X10 ⁻⁶	8X10 ⁻³	6X10 ⁻⁸	3X10 ⁻⁴
		I	1X10 ⁻⁶	8X10 ⁻³	5X10 ⁻⁸	3X10 ⁻⁴
Neptunium (93)-----	Np 237	S	4X10 ⁻¹²	9X10 ⁻⁵	1X10 ⁻¹³	3X10 ⁻⁵
		I	1X10 ⁻¹⁰	9X10 ⁻⁴	4X10 ⁻¹²	3X10 ⁻⁵
	Np 239	S	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
		I	7X10 ⁻⁷	4X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
Nickel (28)-----	Ni 59	S	5X10 ⁻⁷	6X10 ⁻³	2X10 ⁻⁸	2X10 ⁻⁴
		I	8X10 ⁻⁷	6X10 ⁻²	3X10 ⁻⁸	2X10 ⁻³

/1/ See notes at end of table.

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Niobium (Columbium) (41)-----	Ni 63	S	6X10 ⁻⁸	8X10 ⁻⁴	2X10 ⁻⁹	3X10 ⁻⁵
		I	3X10 ⁻⁷	2X10 ⁻²	1X10 ⁻⁸	7X10 ⁻⁴
	Ni 65	S	9X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
		I	5X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
	Nb 93 m	S	1X10 ⁻⁷	1X10 ⁻²	4X10 ⁻⁹	4X10 ⁻⁴
		I	2X10 ⁻⁷	1X10 ⁻²	5X10 ⁻⁹	4X10 ⁻⁴
Osmium (76)-----	Nb 95	S	5X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁹	1X10 ⁻⁴
		I	1X10 ⁻⁷	3X10 ⁻³	3X10 ⁻⁹	1X10 ⁻⁴
	Nb 97	S	6X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	9X10 ⁻⁴
		I	5X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	9X10 ⁻⁴
	Os 185	S	5X10 ⁻⁷	2X10 ⁻³	2X10 ⁻⁸	7X10 ⁻⁵
		I	5X10 ⁻⁸	2X10 ⁻³	2X10 ⁻⁹	7X10 ⁻⁵
Palladium (46)-----	Os 191 m	S	2X10 ⁻⁵	7X10 ⁻²	6X10 ⁻⁷	3X10 ⁻³
		I	9X10 ⁻⁶	7X10 ⁻²	3X10 ⁻⁷	2X10 ⁻³
	Os 191	S	1X10 ⁻⁶	5X10 ⁻³	4X10 ⁻⁸	2X10 ⁻⁴
		I	4X10 ⁻⁷	5X10 ⁻³	1X10 ⁻⁸	2X10 ⁻⁴
	Os 193	S	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	5X10 ⁻⁵
		I	3X10 ⁻⁷	2X10 ⁻³	9X10 ⁻⁹	5X10 ⁻⁵
Platinum (78)-----	Pd 103	S	1X10 ⁻⁶	1X10 ⁻²	5X10 ⁻⁸	3X10 ⁻⁴
		I	7X10 ⁻⁷	8X10 ⁻³	3X10 ⁻⁸	3X10 ⁻⁴
	Pd 109	S	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	9X10 ⁻⁵
		I	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	7X10 ⁻⁵
	P 32	S	7X10 ⁻⁸	5X10 ⁻⁴	2X10 ⁻⁹	2X10 ⁻⁵
		I	8X10 ⁻⁸	7X10 ⁻⁴	3X10 ⁻⁹	2X10 ⁻⁵
Plutonium (94)-----	Pt 191	S	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
		I	6X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	1X10 ⁻³
	Pt 193 m	S	7X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	1X10 ⁻³
		I	5X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	1X10 ⁻³
	Pt 197 m	S	6X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	1X10 ⁻³
		I	5X10 ⁻⁶	3X10 ⁻²	2X10 ⁻⁷	1X10 ⁻³
Phosphorus (15)-----	Pt 197	S	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
		I	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
	Pu 238	S	2X10 ⁻¹²	1X10 ⁻⁴	7X10 ⁻¹⁴	5X10 ⁻⁶
		I	3X10 ⁻¹¹	8X10 ⁻⁴	1X10 ⁻¹²	3X10 ⁻⁵
	Pu 239	S	2X10 ⁻¹²	1X10 ⁻⁴	6X10 ⁻¹⁴	5X10 ⁻⁶
		I	4X10 ⁻¹¹	8X10 ⁻⁴	1X10 ⁻¹²	3X10 ⁻⁵

/1/ See notes at end of table.

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope ^{1/}		Table I		Table II		
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	
	Pu 240	S	2X10 ⁻¹²	1X10 ⁻⁴	6X10 ⁻¹⁴	5X10 ⁻⁶	
		I	4X10 ⁻¹¹	8X10 ⁻⁴	1X10 ⁻¹²	3X10 ⁻⁵	
	Pu 241	S	9X10 ⁻¹¹	7X10 ⁻³	3X10 ⁻¹²	2X10 ⁻⁴	
		I	4X10 ⁻⁸	4X10 ⁻²	1X10 ⁻⁹	1X10 ⁻³	
	Pu 242	S	2X10 ⁻¹²	1X10 ⁻⁴	6X10 ⁻¹⁴	5X10 ⁻⁶	
		I	4X10 ⁻¹¹	9X10 ⁻⁴	1X10 ⁻¹²	3X10 ⁻⁵	
	Pu 243	S	2X10 ⁻⁶	1X10 ⁻²	6X10 ⁻⁸	3X10 ⁻⁴	
		I	2X10 ⁻⁶	1X10 ⁻²	8X10 ⁻⁸	3X10 ⁻⁴	
	Pu 244	S	2X10 ⁻¹²	1X10 ⁻⁴	6X10 ⁻¹⁴	4X10 ⁻⁶	
		I	3X10 ⁻¹¹	3X10 ⁻⁴	1X10 ⁻¹²	1X10 ⁻⁵	
	Polonium (84)-----	Po 210	S	5X10 ⁻¹⁰	2X10 ⁻⁵	2X10 ⁻¹¹	7X10 ⁻⁷
		I	2X10 ⁻¹⁰	8X10 ⁻⁴	7X10 ⁻¹²	3X10 ⁻⁵	
Potassium (19)-----	K 42	S	2X10 ⁻⁶	9X10 ⁻³	7X10 ⁻⁸	3X10 ⁻⁴	
		I	1X10 ⁻⁷	6X10 ⁻⁴	4X10 ⁻⁹	2X10 ⁻⁵	
	Praseodymium (59)-----	Pr 142	S	2X10 ⁻⁷	9X10 ⁻⁴	7X10 ⁻⁹	3X10 ⁻⁵
		I	2X10 ⁻⁷	9X10 ⁻⁴	5X10 ⁻⁹	3X10 ⁻⁵	
		S	3X10 ⁻⁷	1X10 ⁻³	1X10 ⁻⁸	5X10 ⁻⁵	
		I	2X10 ⁻⁷	1X10 ⁻³	1X10 ⁻⁹	5X10 ⁻⁵	
	Promethium (61)-----	Pm 147	S	6X10 ⁻⁸	6X10 ⁻³	2X10 ⁻⁹	2X10 ⁻⁴
		I	1X10 ⁻⁷	6X10 ⁻³	3X10 ⁻⁹	2X10 ⁻⁴	
		S	3X10 ⁻⁷	1X10 ⁻³	1X10 ⁻⁸	4X10 ⁻⁵	
		I	2X10 ⁻⁷	1X10 ⁻³	1X10 ⁻⁹	4X10 ⁻⁵	
	Protoactinium (91)-----	Pa 230	S	2X10 ⁻⁹	7X10 ⁻³	6X10 ⁻¹¹	2X10 ⁻⁴
		I	8X10 ⁻¹⁰	7X10 ⁻³	3X10 ⁻¹¹	2X10 ⁻⁴	
		S	1X10 ⁻¹²	3X10 ⁻⁵	4X10 ⁻¹⁴	9X10 ⁻⁷	
	Pa 231	I	1X10 ⁻¹⁰	8X10 ⁻⁴	4X10 ⁻¹²	2X10 ⁻⁵	
		S	6X10 ⁻⁷	4X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴	
	Pa 233	I	2X10 ⁻⁷	3X10 ⁻³	5X10 ⁻⁹	1X10 ⁻⁴	
		S	2X10 ⁻⁹	2X10 ⁻⁵	5X10 ⁻¹¹	7X10 ⁻⁷	
	Radium (88)-----	Ra 223	I	2X10 ⁻¹⁰	1X10 ⁻⁴	3X10 ⁻¹²	4X10 ⁻⁶
		S	5X10 ⁻⁹	7X10 ⁻⁵	2X10 ⁻¹⁰	2X10 ⁻⁶	
		I	7X10 ⁻¹⁰	2X10 ⁻⁴	2X10 ⁻¹¹	5X10 ⁻⁶	
		S	3X10 ⁻¹¹	4X10 ⁻⁷	3X10 ⁻¹²	3X10 ⁻⁸	
		I	5X10 ⁻¹¹	9X10 ⁻⁴	2X10 ⁻¹²	3X10 ⁻⁵	
		S	7X10 ⁻¹¹	8X10 ⁻⁷	2X10 ⁻¹²	3X10 ⁻⁸	
		I	4X10 ⁻¹¹	7X10 ⁻⁴	1X10 ⁻¹²	3X10 ⁻⁵	

/1/ See notes at end of table.

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope	/1/	Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Radon (86)-----	Rn 220	S	3×10^{-7}	-----	1×10^{-8}	-----
	Rn 222	I	1×10^{-7}	-----	3×10^{-9}	-----
Rhenium (75)-----	Re 183	S	3×10^{-6}	2×10^{-2}	9×10^{-8}	6×10^{-4}
	Re 186	I	2×10^{-7}	8×10^{-3}	5×10^{-9}	3×10^{-4}
	Re 186	S	6×10^{-7}	3×10^{-3}	2×10^{-8}	9×10^{-5}
	Re 187	I	2×10^{-6}	1×10^{-2}	8×10^{-9}	5×10^{-5}
	Re 187	S	9×10^{-7}	7×10^{-2}	3×10^{-8}	3×10^{-3}
	Re 188	I	5×10^{-7}	4×10^{-3}	2×10^{-8}	2×10^{-5}
Rhodium (45)-----	Rh 103 m	S	4×10^{-7}	2×10^{-4}	1×10^{-8}	6×10^{-5}
	Rh 105	I	2×10^{-5}	9×10^{-1}	6×10^{-6}	3×10^{-2}
	Rh 105	S	8×10^{-5}	4×10^{-1}	3×10^{-6}	1×10^{-2}
	Rh 105	I	6×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-4}
Rubidium (37)-----	Rb 86	S	8×10^{-7}	4×10^{-3}	3×10^{-8}	1×10^{-4}
	Rb 86	I	5×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-5}
	Rb 87	S	3×10^{-8}	2×10^{-4}	1×10^{-9}	7×10^{-5}
Ruthenium (44)-----	Rb 87	I	7×10^{-7}	7×10^{-3}	2×10^{-8}	2×10^{-4}
	Ru 97	S	5×10^{-8}	3×10^{-3}	2×10^{-9}	1×10^{-4}
	Ru 97	I	7×10^{-6}	5×10^{-2}	2×10^{-8}	2×10^{-4}
	Ru 103	S	2×10^{-6}	1×10^{-2}	8×10^{-8}	4×10^{-4}
	Ru 103	I	2×10^{-7}	1×10^{-3}	6×10^{-8}	3×10^{-5}
	Ru 105	S	5×10^{-8}	2×10^{-3}	2×10^{-9}	8×10^{-5}
	Ru 105	I	8×10^{-7}	2×10^{-3}	3×10^{-8}	8×10^{-4}
	Ru 106	S	7×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-4}
Samarium (62)-----	Ru 106	I	5×10^{-8}	3×10^{-4}	2×10^{-9}	1×10^{-5}
	Sm 147	S	8×10^{-9}	4×10^{-4}	3×10^{-10}	1×10^{-5}
	Sm 147	I	6×10^{-11}	3×10^{-3}	2×10^{-12}	1×10^{-5}
	Sm 151	S	7×10^{-10}	2×10^{-3}	2×10^{-12}	6×10^{-5}
	Sm 151	I	3×10^{-8}	2×10^{-2}	9×10^{-9}	7×10^{-4}
Scandium (21)-----	Sm 153	S	6×10^{-7}	1×10^{-2}	2×10^{-9}	4×10^{-4}
	Sm 153	I	1×10^{-7}	1×10^{-3}	5×10^{-8}	4×10^{-5}
	Sc 46	S	5×10^{-7}	2×10^{-3}	2×10^{-8}	8×10^{-5}
	Sc 46	I	4×10^{-7}	2×10^{-3}	1×10^{-9}	8×10^{-5}
			2×10^{-8}	1×10^{-3}	8×10^{-10}	4×10^{-5}

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Selenium (34)-----	Sc 47	S	6×10^{-7}	3×10^{-3}	2×10^{-8}	9×10^{-5}
		I	5×10^{-7}	3×10^{-3}	2×10^{-8}	9×10^{-5}
	Sc 48	S	2×10^{-7}	8×10^{-4}	6×10^{-9}	3×10^{-5}
		I	1×10^{-7}	8×10^{-4}	5×10^{-9}	3×10^{-5}
Silicon (14)-----	Se 75	S	1×10^{-6}	9×10^{-3}	4×10^{-8}	3×10^{-4}
		I	1×10^{-7}	8×10^{-3}	4×10^{-9}	3×10^{-4}
	Si 31	S	6×10^{-6}	3×10^{-2}	2×10^{-7}	9×10^{-4}
		I	1×10^{-6}	6×10^{-3}	3×10^{-8}	2×10^{-4}
Silver (47)-----	Ag 105	S	6×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-4}
		I	8×10^{-8}	3×10^{-3}	3×10^{-9}	1×10^{-4}
	Ag 110 m	S	2×10^{-7}	9×10^{-4}	7×10^{-9}	3×10^{-5}
		I	1×10^{-8}	9×10^{-4}	3×10^{-10}	3×10^{-5}
Sodium (11)-----	Ag 111	S	3×10^{-7}	1×10^{-3}	1×10^{-8}	4×10^{-5}
		I	2×10^{-7}	1×10^{-3}	1×10^{-9}	4×10^{-5}
	Na 22	S	2×10^{-7}	1×10^{-3}	8×10^{-9}	4×10^{-5}
		I	9×10^{-9}	1×10^{-4}	6×10^{-10}	4×10^{-5}
Strontium (38)-----	Na 24	S	1×10^{-6}	9×10^{-3}	3×10^{-8}	3×10^{-4}
		I	1×10^{-7}	6×10^{-4}	4×10^{-9}	2×10^{-4}
	Sr 85 m	S	4×10^{-5}	8×10^{-1}	5×10^{-9}	3×10^{-5}
		I	4×10^{-5}	2×10^{-1}	1×10^{-9}	7×10^{-3}
Sulfur (16)-----	Sr 85	S	3×10^{-7}	2×10^{-3}	1×10^{-9}	7×10^{-3}
		I	2×10^{-7}	3×10^{-3}	8×10^{-9}	1×10^{-4}
	Sr 89	S	1×10^{-8}	5×10^{-4}	4×10^{-9}	2×10^{-4}
		I	3×10^{-8}	3×10^{-4}	3×10^{-10}	3×10^{-5}
Tantalum (73)-----	Sr 90	S	4×10^{-9}	8×10^{-5}	1×10^{-9}	3×10^{-5}
		I	1×10^{-9}	1×10^{-5}	3×10^{-11}	3×10^{-7}
	Sr 91	S	5×10^{-9}	1×10^{-3}	3×10^{-10}	4×10^{-5}
		I	1×10^{-9}	1×10^{-3}	2×10^{-10}	4×10^{-5}
Technetium (43)-----	Sr 92	S	4×10^{-7}	2×10^{-3}	2×10^{-8}	7×10^{-5}
		I	3×10^{-7}	1×10^{-3}	9×10^{-9}	5×10^{-5}
	S 35	S	4×10^{-7}	2×10^{-3}	2×10^{-8}	7×10^{-5}
		I	3×10^{-7}	2×10^{-3}	1×10^{-8}	6×10^{-5}
Sulfur (16)-----	Ta 182	S	3×10^{-7}	2×10^{-3}	9×10^{-9}	6×10^{-5}
		I	3×10^{-7}	2×10^{-3}	9×10^{-9}	3×10^{-4}
	Tc 96 m	S	4×10^{-8}	1×10^{-3}	1×10^{-9}	3×10^{-5}
		I	2×10^{-8}	1×10^{-3}	1×10^{-10}	4×10^{-5}
Sulfur (16)-----	Tc 96 m	S	8×10^{-5}	4×10^{-1}	3×10^{-9}	1×10^{-5}
		I	3×10^{-5}	3×10^{-1}	1×10^{-9}	1×10^{-5}

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PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Tellurium (52)-----	Tc 96	S	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
		I	2X10 ⁻⁷	1X10 ⁻³	8X10 ⁻⁹	5X10 ⁻⁵
	Tc 97 m	S	2X10 ⁻⁶	1X10 ⁻²	8X10 ⁻⁸	4X10 ⁻⁴
		I	2X10 ⁻⁷	5X10 ⁻³	5X10 ⁻⁹	2X10 ⁻⁴
	Tc 97	S	1X10 ⁻⁵	5X10 ⁻²	4X10 ⁻⁷	2X10 ⁻³
		I	3X10 ⁻⁷	2X10 ⁻²	1X10 ⁻⁸	8X10 ⁻⁴
	Tc 99 m	S	4X10 ⁻⁵	2X10 ⁻¹	1X10 ⁻⁷	6X10 ⁻³
		I	1X10 ⁻⁵	8X10 ⁻²	5X10 ⁻⁷	3X10 ⁻³
	Tc 99	S	2X10 ⁻⁶	1X10 ⁻²	7X10 ⁻⁸	3X10 ⁻⁴
		I	6X10 ⁻⁸	5X10 ⁻³	2X10 ⁻⁹	2X10 ⁻⁴
	Te 125 m	S	4X10 ⁻⁷	5X10 ⁻³	1X10 ⁻⁸	2X10 ⁻⁴
		I	1X10 ⁻⁷	3X10 ⁻³	4X10 ⁻⁹	1X10 ⁻⁴
	Te 127 m	S	1X10 ⁻⁷	2X10 ⁻³	5X10 ⁻⁹	6X10 ⁻⁵
		I	4X10 ⁻⁸	2X10 ⁻³	1X10 ⁻⁹	5X10 ⁻⁵
	Te 127	S	2X10 ⁻⁶	8X10 ⁻³	6X10 ⁻⁸	3X10 ⁻⁴
		I	9X10 ⁻⁷	5X10 ⁻³	3X10 ⁻⁹	2X10 ⁻⁴
	Te 129 m	S	8X10 ⁻⁸	1X10 ⁻³	3X10 ⁻⁹	3X10 ⁻⁵
		I	3X10 ⁻⁸	6X10 ⁻⁴	1X10 ⁻⁹	2X10 ⁻⁵
	Te 129	S	5X10 ⁻⁶	2X10 ⁻²	2X10 ⁻⁷	8X10 ⁻⁴
		I	4X10 ⁻⁶	2X10 ⁻²	1X10 ⁻⁷	8X10 ⁻⁴
Terbium (65)-----	Te 131 m	S	4X10 ⁻⁷	2X10 ⁻³	1X10 ⁻⁸	6X10 ⁻⁵
		I	2X10 ⁻⁷	1X10 ⁻³	6X10 ⁻⁹	4X10 ⁻⁵
Thallium (81)-----	Te 132	S	2X10 ⁻⁷	9X10 ⁻⁴	7X10 ⁻⁹	3X10 ⁻⁵
		I	1X10 ⁻⁷	6X10 ⁻⁴	4X10 ⁻⁹	2X10 ⁻⁵
Thorium (90)-----	Tb 160	S	1X10 ⁻⁷	1X10 ⁻³	3X10 ⁻⁹	4X10 ⁻⁵
		I	3X10 ⁻⁸	1X10 ⁻³	1X10 ⁻⁹	4X10 ⁻⁵
	Tl 200	S	3X10 ⁻⁶	1X10 ⁻²	9X10 ⁻⁸	4X10 ⁻⁴
		I	1X10 ⁻⁶	7X10 ⁻³	4X10 ⁻⁸	2X10 ⁻⁴
	Tl 201	S	2X10 ⁻⁶	9X10 ⁻³	7X10 ⁻⁸	3X10 ⁻⁴
		I	9X10 ⁻⁷	5X10 ⁻³	3X10 ⁻⁸	2X10 ⁻⁴
	Tl 202	S	8X10 ⁻⁷	4X10 ⁻³	3X10 ⁻⁸	1X10 ⁻⁴
Thorium (90)-----		I	2X10 ⁻⁷	2X10 ⁻³	8X10 ⁻⁹	7X10 ⁻⁵
	Tl 204	S	6X10 ⁻⁷	3X10 ⁻³	2X10 ⁻⁸	1X10 ⁻⁴
		I	3X10 ⁻⁸	2X10 ⁻³	9X10 ⁻¹⁰	6X10 ⁻⁵
	Th 228	S	9X10 ⁻¹²	2X10 ⁻⁴	3X10 ⁻¹³	7X10 ⁻⁶
		I	6X10 ⁻¹²	4X10 ⁻⁴	2X10 ⁻¹³	1X10 ⁻⁵
	Th 230	S	2X10 ⁻¹²	5X10 ⁻⁵	8X10 ⁻¹⁴	2X10 ⁻⁶
		I	1X10 ⁻¹¹	9X10 ⁻⁴	3X10 ⁻¹³	3X10 ⁻⁵

/1/ See notes at end of table.

NOTE: Pages C-13a to C-27d effective January 1, 1977, AMENDMENTS replace Pages C-13a to C-27, inclusive, North Carolina Regulations for Protection Against Radiation, effective August 1, 1974 (former values available upon request to the Agency).

PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Thulium (69)-----	Th 232	S	3×10^{-11}	5×10^{-5}	1×10^{-12}	2×10^{-5}
		I	3×10^{-11}	1×10^{-3}	1×10^{-12}	4×10^{-5}
	Th natural	S	3×10^{-11}	3×10^{-5}	1×10^{-12}	1×10^{-5}
		I	3×10^{-11}	3×10^{-4}	1×10^{-12}	1×10^{-5}
	Th 234	S	6×10^{-8}	5×10^{-4}	2×10^{-9}	2×10^{-5}
		I	3×10^{-8}	5×10^{-4}	1×10^{-9}	2×10^{-5}
Tin (50)-----	Tm 170	S	4×10^{-8}	1×10^{-3}	1×10^{-9}	5×10^{-5}
		I	3×10^{-8}	1×10^{-3}	1×10^{-9}	5×10^{-5}
	Tm 171	S	1×10^{-7}	1×10^{-2}	4×10^{-9}	5×10^{-4}
Tungsten (Wolfram) (74)-----		I	2×10^{-7}	1×10^{-2}	8×10^{-9}	5×10^{-4}
	Sn 113	S	4×10^{-8}	2×10^{-3}	1×10^{-8}	9×10^{-5}
		I	5×10^{-8}	2×10^{-3}	2×10^{-9}	8×10^{-5}
	Sn 125	S	1×10^{-7}	5×10^{-4}	4×10^{-9}	2×10^{-5}
Uranium (92)-----		I	8×10^{-8}	5×10^{-4}	4×10^{-9}	2×10^{-5}
	W 181	S	2×10^{-6}	1×10^{-2}	3×10^{-8}	2×10^{-4}
		I	1×10^{-7}	1×10^{-2}	8×10^{-9}	4×10^{-4}
	W 185	S	1×10^{-7}	1×10^{-3}	4×10^{-9}	3×10^{-4}
		I	8×10^{-7}	4×10^{-3}	3×10^{-8}	1×10^{-4}
	W 187	S	1×10^{-7}	3×10^{-3}	4×10^{-9}	1×10^{-4}
		I	4×10^{-7}	2×10^{-3}	4×10^{-8}	7×10^{-5}
		I	3×10^{-7}	2×10^{-3}	2×10^{-8}	1×10^{-5}
Uranium (92)-----	U 230	S	3×10^{-10}	2×10^{-4}	1×10^{-11}	1×10^{-5}
		I	3×10^{-10}	1×10^{-4}	1×10^{-11}	5×10^{-5}
	U 232	S	1×10^{-10}	1×10^{-4}	4×10^{-12}	5×10^{-5}
		I	1×10^{-10}	8×10^{-4}	3×10^{-12}	3×10^{-5}
	U 233	S	3×10^{-11}	8×10^{-4}	9×10^{-13}	3×10^{-5}
		I	5×10^{-10}	9×10^{-4}	9×10^{-11}	3×10^{-5}
	U 234	S	1×10^{-10}	9×10^{-4}	2×10^{-11}	3×10^{-5}
		I	6×10^{-10}	9×10^{-4}	4×10^{-11}	3×10^{-5}
	U 235	S	1×10^{-10}	9×10^{-4}	2×10^{-11}	3×10^{-5}
		I	5×10^{-10}	8×10^{-4}	2×10^{-11}	3×10^{-5}
	U 236	S	1×10^{-10}	8×10^{-4}	4×10^{-12}	3×10^{-5}
		I	6×10^{-10}	1×10^{-3}	2×10^{-11}	3×10^{-5}
	U 238	S	1×10^{-10}	1×10^{-3}	4×10^{-12}	3×10^{-5}
		I	7×10^{-11}	1×10^{-3}	3×10^{-12}	4×10^{-5}
	U 240	S	1×10^{-10}	1×10^{-3}	5×10^{-12}	4×10^{-5}
		I	2×10^{-7}	1×10^{-3}	8×10^{-9}	3×10^{-5}
	U natural	S	2×10^{-7}	1×10^{-3}	6×10^{-9}	3×10^{-5}
		I	7×10^{-11}	5×10^{-4}	3×10^{-12}	2×10^{-5}
		I	6×10^{-11}	5×10^{-4}	2×10^{-12}	2×10^{-5}

/1/ See notes at end of table.

NOTE: Pages C-13a to C-27d effective January 1, 1967, AMENDMENTS replace Pages C-13 to C-27, inclusive, North Carolina Regulations for Protection Against Radiation, effective August 1, 1964 (former values available upon request to the Agency).

PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope /1/		Table I		Table II	
			Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Vanadium (23)-----	V 48	S	2×10^{-7}	9×10^{-4}	1×10^{-9}	3×10^{-5}
		I	6×10^{-8}	8×10^{-4}	2×10^{-9}	3×10^{-5}
Xenon (54)-----	Xe 131 m	Sub	2×10^{-5}	-----	4×10^{-7}	-----
	Xe 133 m	Sub	1×10^{-5}	-----	3×10^{-7}	-----
	Xe 133	Sub	1×10^{-5}	-----	3×10^{-7}	-----
	Xe 135	Sub	4×10^{-6}	-----	1×10^{-7}	-----
Ytterbium (70)-----	Yb 175	S	7×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-4}
		I	6×10^{-7}	3×10^{-3}	2×10^{-8}	1×10^{-4}
Yttrium (39)-----	Y 90	S	1×10^{-7}	6×10^{-4}	4×10^{-9}	2×10^{-5}
		I	1×10^{-7}	6×10^{-4}	3×10^{-9}	2×10^{-5}
	Y 91 m	S	2×10^{-5}	1×10^{-1}	8×10^{-7}	3×10^{-3}
		I	2×10^{-5}	1×10^{-1}	6×10^{-7}	3×10^{-3}
	Y 91	S	4×10^{-8}	8×10^{-4}	1×10^{-9}	3×10^{-5}
		I	3×10^{-8}	8×10^{-4}	1×10^{-9}	3×10^{-5}
	Y 92	S	4×10^{-7}	2×10^{-3}	1×10^{-8}	6×10^{-5}
		I	3×10^{-7}	2×10^{-3}	1×10^{-8}	6×10^{-5}
	Y 93	S	2×10^{-7}	8×10^{-4}	6×10^{-9}	3×10^{-5}
		I	1×10^{-7}	8×10^{-4}	5×10^{-9}	3×10^{-5}
Zinc (30)-----	Zn 65	S	1×10^{-7}	3×10^{-3}	4×10^{-9}	1×10^{-4}
		I	6×10^{-8}	5×10^{-3}	2×10^{-9}	2×10^{-4}
	Zn 69 m	S	4×10^{-7}	2×10^{-3}	1×10^{-8}	7×10^{-5}
		I	3×10^{-7}	2×10^{-3}	1×10^{-8}	7×10^{-5}
	Zn 69	S	7×10^{-6}	5×10^{-2}	2×10^{-7}	2×10^{-3}
		I	9×10^{-6}	5×10^{-2}	3×10^{-7}	2×10^{-3}
Zirconium (40)-----	Zr 93	S	1×10^{-7}	2×10^{-2}	4×10^{-9}	8×10^{-4}
		I	3×10^{-7}	2×10^{-2}	1×10^{-8}	8×10^{-4}
	Zr 95	S	1×10^{-7}	2×10^{-3}	1×10^{-9}	6×10^{-5}
		I	3×10^{-8}	2×10^{-3}	1×10^{-9}	6×10^{-5}
	Zr 97	S	1×10^{-7}	5×10^{-4}	4×10^{-9}	2×10^{-5}
		I	9×10^{-8}	5×10^{-4}	3×10^{-9}	2×10^{-5}
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life less than 2 hours.		Sub	1×10^{-6}	-----	3×10^{-8}	-----

NOTE: Pages C-13a to C-27d effective January 1, 1967, AMENDMENTS replace Pages C-13 to C-12, inclusive, North Carolina Regulations for Protection Against Radiation, effective August 1, 1964 (former values available upon request to the Agency).

PART C

APPENDIX A

CONCENTRATIONS IN AIR AND WATER ABOVE NATURAL BACKGROUND /1/

Element (atomic number)	Isotope ^{/1/}	Table I		Table II	
		Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life greater than 2 hours.		3×10^{-9}	9×10^{-5}	1×10^{-10}	3×10^{-6}
Any single radionuclide not listed above, which decays by alpha emission or spontaneous fission.		6×10^{-13}	4×10^{-7}	2×10^{-14}	3×10^{-8}

^{/1/} Soluble - S; Insoluble - I.
 "Sub" means that values given are for submersion in a semi-spherical infinite cloud of airborne material.

NOTE: Pages C-13a to C-27d effective January 1, 1967, AMENDMENTS replace Pages C-13 to C-27, inclusive, North Carolina Regulations for Protection Against Radiation, effective August 1, 1964 (former values available upon request to the Agency).

PART C

APPENDIX A

NOTE: In any case where there is a mixture in air or water of more than one radionuclide, the limiting values for purposes of this Appendix should be determined as follows:

1. If the identity and concentration of each radionuclide in the mixture are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the quantity present in the mixture and the limit otherwise established in Appendix "A" for the specific radionuclide when not in a mixture. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" (i.e., "unity").

EXAMPLE: If radionuclides a, b, and c are present in concentrations C_a , C_b , and C_c , and if the applicable MPC's are MPC_a , MPC_b , and MPC_c respectively, then the concentrations shall be limited so that the following relationship exists:

$$\frac{C_a}{MPC_a} + \frac{C_b}{MPC_b} + \frac{C_c}{MPC_c} \leq 1$$

2. If either the identity or the concentration of any radionuclide in the mixture is not known, the limiting values for purposes of Appendix "A" shall be:

- a. For purposes of Table I, Col. 1 --- 6×10^{-13}
- b. For purposes of Table I, Col. 2 --- 4×10^{-7}
- c. For purposes of Table II, Col. 1 --- 2×10^{-14}
- d. For purposes of Table II, Col. 2 --- 3×10^{-8}

3. If any of the conditions specified below are met, the corresponding values specified below may be used in lieu of those specified in Paragraph 2 above.

a. If the identity of each radionuclide in the mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the concentration limit for the mixture is the limit specified in Appendix "A" for the radionuclide in the mixture having the lowest concentration limit; or,

b. If the identity of each radionuclide in the mixture is not known, but it is known that certain radionuclides specified in Appendix "A" are not present in the mixture, the concentration limit for the mixture is the lowest concentration limit specified in Appendix "A" for any radionuclide which is not known to be absent from the mixture; or,

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PART C

APPENDIX A

c. Element (atomic number) and isotope	Table I		Table II	
	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)	Column 1 Air (uc/ml)	Column 2 Water (uc/ml)
If it is known that Sr 90, I 125, I 126, I 129, I 131, (I 133, Table II only), Pb 210, Po 210, At 211, Ra 223, Ra 224, Ra 226, Ac 227, Ra 228, Th 230, Pa 231, Th 232, Th-nat, Cm 248, Cf 254, and Fm 256 are not present-----	-----	9×10^{-5}	-----	3×10^{-6}
If it is known that Sr 90, I 125, I 126, I 129, (I 131, I 133, Table II only), Pb 210, Po 210, Ra 223, Ra 226, Ra 228, Pa 231, Th-nat, Cm 248, Cf 254, and Fm 256 are not present-----	-----	6×10^{-5}	-----	2×10^{-6}
If it is known that Sr 90, I 129, (I 125, I 126, I 131, Table II only), Pb 210, Ra 226, Ra 228, Cm 248, and Cf 254 are not present-----	-----	2×10^{-5}	-----	6×10^{-7}
If it is known that (I 129, Table II only), Ra 226, and Ra 228 are not present-----	-----	3×10^{-9}	-----	1×10^{-7}
If it is known that alpha-emitters and Sr 90, I 129, Pb 210, Ac 227, Ra 228, Pa 230, Pu 241, and Bk 249 are not present-----	3×10^{-9}	-----	1×10^{-10}	-----
If it is known that alpha-emitters and Pb 210, Ac 227, Ra 228, and Pu 241 are not present-----	3×10^{-10}	-----	1×10^{-11}	-----
If it is known that alpha-emitters and Ac 227 are not present-----	3×10^{-11}	-----	1×10^{-12}	-----
If it is known that Ac 227, Th 230, Pa 231, Pu 238, Pu 239, Pu 240, Pu 242, Pu 244, Cm 248, Cf 249 and Cf 251 are not present-----	3×10^{-12}	-----	1×10^{-13}	-----

4. If the mixture of radionuclides consists of uranium and its daughter products in ore dust prior to chemical processing of the uranium ore, the values specified

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APPENDIX A

below may be used in lieu of those determined in accordance with paragraph 1 above or those specified in paragraphs 2 and 3 above.

a. For purposes of Table I, Column 1, 1×10^{-10} uc/ml gross alpha activity; or 2.5×10^{-11} uc/ml natural uranium; or 75 micrograms per cubic meter of air natural uranium.

b. For purposes of Table II, Column 1, 3×10^{-12} uc/ml gross alpha activity; or 8×10^{-13} uc/ml natural uranium; or 3 micrograms per cubic meter of air natural uranium.

5. For purposes of this note, a radionuclide may be considered as not present in a mixture of (a) the ratio of the concentration of that radionuclide in the mixture (C_a) to the concentration limit for that radionuclide specified in Table II of Appendix "A" (MPC_a) does not exceed 1/10, (i.e., $\frac{C_a}{MPC_a} \leq \frac{1}{10}$) and (b) the sum

of such ratios for all radionuclides considered as not present in the mixture does not exceed 1/4, (i.e., $\frac{C_a}{MPC_a} + \frac{C_b}{MPC_b} + \dots \leq \frac{1}{4}$).

APPENDIX B

PART C

Material	Micro- curies
Ag 105	1
Ag 111	10
As 76, As 77	10
Au 198	10
Au 199	10
Ba 140+ La 140	1
Be 7	50
C 14	50
Ca 45	10
Cd 109+ Ag 109	10
Ce 144+ Pr 144	1
Cl 36	1
Co 60	1
Cr 51	50
Cs 137+ Ba 137	1
Cu 64	50
Eu 154	1
F 18	50
Fe 55	50
Fe 59	1
Ga 72	10
Ge 71	50
H 3 (HTO or H ₃ O)	250
I 131	10
In 114	1
Ir 192	10
K 42	10
La 140	10
Mn 52	1
Mn 56	50
Mo 99	10
Na 22	10
Na 24	10
Nb 95	10
Ni 59	1
Ni 63	1
P 32	10
Pd 103+ Rh 103	50
Pd 109	10
Pm 147	10
Po 210	0.1
Pr 143	10
Pu 239	1
Ra 226	0.1
Rb 86	10
Re 186	10
Rh 105	10
Ru 106+ Rh 106	1

APPENDIX B--Continued

Material	Micro- curies
S 35	50
Sb 124	1
Sc 46	1
Sm 153	10
Sn 113	10
Sr 89	1
Sr 90+Y 90	0.1
Ta 182	10
Tc 96	1
Tc 99	1
Te 127	10
Te 129	1
Th (natural)	50
Tl 204	50
Tritium. See H 3	250
U (natural)	50
U 233	1
U 234-U 235	50
V 48	1
W 185	10
Y 90	1
Y 91	1
Zn 65	10
Unidentified radioactive materials or any of the above in unknown mixtures	0.1

NOTE: For purposes of Sections C.203, C.303, and C.304, where there is involved a combination of isotopes in known amounts the limit for the combination should be derived as follows: Determine, for each isotope in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific isotope when not in combination. The sum of such ratios for all the isotopes in the combination may not exceed "1" (i.e., "unity").

EXAMPLE: For purposes of Section C.304, if a particular batch contains 2,000 uc of Au¹⁹⁸ and 25,000 uc of C¹⁴, it may also include not more than 3,000 uc of I¹³¹. This limit was determined as follows:

$$\frac{2,000\text{uc Au}^{198}}{10,000\text{uc}} + \frac{25,000\text{uc C}^{14}}{50,000\text{uc}} + \frac{3,000\text{uc I}^{131}}{10,000\text{uc}} = 1$$

The denominator in each of the above ratios was obtained by multiplying the figure in the table by 1,000 as provided in Section C.304.

NORTH CAROLINA STATE BOARD OF HEALTH

August 1, 1964

NOTICE TO EMPLOYEES

STANDARDS FOR PROTECTION AGAINST RADIATION

IN NORTH CAROLINA REGULATIONS FOR PROTECTION AGAINST RADIATION THE STATE BOARD OF HEALTH HAS ESTABLISHED STANDARDS FOR YOUR PROTECTION AGAINST RADIATION HAZARDS

YOUR EMPLOYER'S RESPONSIBILITY

Your employer is required to—

1. Apply these regulations to work involving sources of radiation.
2. Post or otherwise make available to you a copy of the State Board of Health regulations, licenses, and operating procedures which apply to work you are engaged in, and explain their provisions to you.

YOUR RESPONSIBILITY AS A WORKER

You should familiarize yourself with those provisions of the State Board of Health regulations, and the operating procedures which apply to the work you are engaged in. You should observe their provisions for your own protection and protection of your co-workers.

WHAT IS COVERED BY THESE REGULATIONS

1. Limits on exposure to radiation and radioactive material in restricted and unrestricted areas.
2. Measures to be taken after accidental exposure;
3. Personnel monitoring, surveys and equipment;
4. Caution signs, labels, and safety interlock equipment;
5. Exposure records and reports; and
6. Related matters.

REPORTS ON YOUR RADIATION EXPOSURE HISTORY

1. The State Board of Health regulations require that your employer give you a written report if you receive an exposure in excess of any applicable limit as set forth in the regulations or in the license. The basic limits for exposure to employees are set forth in Sections C. 101, C. 103, and C. 104 of the regulations. These sections specify limits on exposure to radiation and exposure to concentrations of radioactive material in air and water.
2. If you work where personnel monitoring is required, and if you request information on your radiation exposures,
 - (a) Your employer must give you a written report, upon termination of your employment, of your radiation exposures, and
 - (b) Your employer must advise you annually of your exposure to radiation.

INSPECTIONS

All licensed or registered activities are subject to inspection by representatives of the State Board of Health or its authorized representatives.

INQUIRIES

Inquiries dealing with the matters outlined above can be sent to the State Board of Health, Raleigh.

POSTING REQUIREMENT

COPIES OF THIS NOTICE MUST BE POSTED IN A SUFFICIENT NUMBER OF PLACES IN EVERY ESTABLISHMENT WHERE EMPLOYEES ARE EMPLOYED IN ACTIVITIES LICENSED OR REGISTERED, PURSUANT TO PART B, BY THE STATE BOARD OF HEALTH TO PERMIT EMPLOYEES WORKING IN OR FREQUENTING ANY PORTION OF A RESTRICTED AREA TO OBSERVE A COPY ON THE WAY TO OR FROM THEIR PLACE OF EMPLOYMENT.

OCCUPATIONAL EXTERNAL RADIATION EXPOSURE HISTORY

See Instructions on the Back

1. NAME (PRINT—LAST, FIRST, AND MIDDLE)	2. SOCIAL SECURITY NO.
3. DATE OF BIRTH (MONTH, DAY, YEAR)	4. AGE IN FULL YEARS (N)

PREVIOUS EMPLOYMENTS INVOLVING RADIATION EXPOSURE—LIST NAME AND ADDRESS OF EMPLOYER		6. DATES OF EMPLOYMENT (FROM—TO)	7. PERIODS OF EXPOSURE	PREVIOUS DOSE HISTORY	
				8. WHOLE BODY (REM)	9. RECORD OR CALCULATED (INSERT ONE)
10. REMARKS		11. ACCUMULATED OCCUPATIONAL DOSE—TOTAL			

WHOLE BODY:

(A) PERMISSIBLE ACCUMULATED DOSE—5(N-18).....REM

(B) TOTAL EXPOSURE TO DATE (FROM ITEM 11)-----REM

(G) PERMISSIBLE DOSE

12. CERTIFICATION: I CERTIFY THAT THE EXPOSURE HISTORY LISTED IN COLUMNS 5, 6, AND 7 IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

EMPLOYEE'S SIGNATURE

DATE _____

14. NAME OF LICENSEE OR REGISTRANT

INSTRUCTIONS FOR PREPARATION OF AGENCY FORM RAD H-102

This form or a clear and legible record containing all the information required on this form must be prepared by each licensee or registrant of the State Board of Health who, pursuant to Section C.101, proposes to expose an individual to a radiation dose in excess of the amounts specified in Section C.101 (a) of the regulations in Part C, "Standards for Protection Against Radiation." The requirement for completion of this form is contained in Section C.102 of that regulation. The information contained in this form is used for estimating the external accumulated occupational dose of the individual for whom the form is completed. A separate Agency Form shall be completed for each individual to be exposed to a radiation dose in excess of the limits specified in Section C.101 (a) of Part C of the State Board of Health regulations.*

Listed below by item are instructions and additional information directly pertinent to completing this form:

Identification

- Item 1. Self-explanatory.
- Item 2. Self-explanatory except that, if individual has no social security number, the word "none" shall be inserted.
- Item 3. Self-explanatory.
- Item 4. Enter the age in full years. This is called "N" when used in calculating the Permissible Dose. N is equal to the number of years of age of the individual on his last birthday.

Occupational Exposure

- Item 5. List the name and address of each previous employer and the address of employment. Start with the most recent employer and work back. Include only those periods of employment since the eighteenth birthday involving occupational exposure to radiation. For periods of self-employment, insert the word "self-employed."
- Item 6. Give the dates of employment.
- Item 7. List periods during which occupational exposure to radiation occurred.
- Item 8. List the dose recorded for each period of exposure from records of previous occupational exposure of

the individual as calculated under Section C.102. Dose is to be given in rem.

"Dose to the whole body" shall be deemed to include any dose to the whole body, gonads, active blood-forming organs, head and trunk, or lens of eye.

- Item 9. After each entry in Item 8 indicate in Item 9 whether dose is obtained from records or calculated in accordance with Section C.102.

- Item 10. Self-explanatory.

Total Accumulated Occupational Dose (Whole Body)

- Item 11. The total for the whole body is obtained by summation of all values in Item 8.

Certification

- Item 12. Upon completion of the report, the employee must certify that the information in Columns 5, 6, and 7 is accurate and complete to the best of his knowledge. The date is the date of his signature.

Calculations

- Item 13. The lifetime accumulated occupational dose for each individual and the permissible dose under Section C.101 (b) are obtained by carrying out the following steps: The value for N should be taken from Item 4. Subtract 18 from N and multiply the difference by 5 rem. (For example, John Smith age 32; $N=32$, $PAD=5(32-18)=70$ rem.) Enter total exposure to date from Item 11. Subtract (b) from (a) and enter the difference under (c). The value in (c) represents the unused part of the permissible accumulated dose. This value for permissible dose is to be carried forward to Agency Form, "Current Occupational External Radiation Exposure (Whole Body)."

- Item 14. Self-explanatory.

*This form requires the signature of the employee concerned.

CURRENT OCCUPATIONAL EXTERNAL RADIATION EXPOSURE

See Instructions on the Back

IDENTIFICATION

1. NAME (PRINT—Last, first, and middle)	2. SOCIAL SECURITY NO.
3. DATE OF BIRTH (Month, day, year)	4. NAME OF LICENSEE OR REGISTRANT

OCCUPATIONAL EXPOSURE

5. DOSE RECORDED FOR (Specify: Whole body, skin of whole body, or hands and forearms, feet and ankles.)		6. WHOLE BODY DOSE STATUS (rem)		7. METHOD OF MONITORING (e.g., Film Badge—FB, Pocket Chamber—PC, Calculations—Calc.) X OR GAMMA BETA NEUTRONS		
8. PERIOD OF EXPOSURE (From—to)		DOSE FOR THE PERIOD (rem)				13. RUNNING TOTAL FOR CALENDAR QUARTER (rem)
		9. X OR GAMMA	10. BETA	11. NEUTRON	12. TOTAL	

LIFETIME ACCUMULATED DOSE

14. PREVIOUS TOTAL (rem)	15. TOTAL QUARTERLY DOSE date rem	16. TOTAL ACCUMULATED DOSE (rem)	17. PERM. ACC. DOSE 5(N-18) (rem)	18. UNUSED PART OF PERMISSIBLE ACCUMULATED DOSE (rem)

INSTRUCTIONS FOR PREPARATION OF AGENCY FORM RAD H-103

The preparation and safekeeping of this form or a clear and legible record containing all the information required on this form is required pursuant to Section C.104, North Carolina Regulations for Protection Against Radiation, as a current record of occupational external radiation exposures. Such a record must be maintained for each individual for whom personnel monitoring is required under Section C.202. Note that a separate Agency Form is to be used for recording external exposure to (1) the whole body; (2) skin of whole body; (3) hands and forearms; or (4) feet and ankles, as provided by Item 5 below.

Listed below by item are instructions and additional information directly pertinent to completing this form.

Identification

Item 1. Self-explanatory.

Item 2. Self-explanatory, except that, if individual has no social security number, the word "none" shall be inserted.

Item 3. Self-explanatory.

Item 4. Self-explanatory.

Occupational Exposure

Item 5. "Dose to the whole body" shall be deemed to include any dose to the whole body, gonads, active blood-forming organs, head and trunk, or lens of eye. Unless the lenses of the eyes are protected with eye shields, dose recorded as whole body dose should include the dose delivered through a tissue equivalent absorber having a thickness of 300 mg/cm² or less. When the lenses of the eyes are protected with eye shields having a tissue equivalent thickness of at least 700 mg/cm², dose recorded as whole body dose should include the dose delivered through a tissue equivalent absorber having a thickness of 1,000 mg/cm² or less.

Dose recorded as dose to the skin of the whole body, hands and forearms, or feet and ankles should include the dose delivered through a tissue equivalent absorber having a thickness of 7 mg/cm² or less. The dose to the skin of the whole body, hands and forearms, or feet and ankles should be recorded on separate forms unless the dose to those parts of the body has been included as dose to the whole body on a form maintained for recording whole body exposure.

Item 6. This item need be completed only when the sheet is used to record whole body exposures and the licensee or registrant is exposing the individual under the provisions of Section C.101 (b) which allows up to 3 rems per quarter to the whole body. Enter in this item the unused part of permissible accumulated dose taken from previous records of exposure, i.e., Item 18 of the preceding Agency Form or Item 13 of Agency Form if the individual's exposure during employment with the licensee or registrant begins with this record.

Item 7. Indicate the method used for monitoring the individual's exposure to each type of radiation to which he is exposed in the course of his duties. Abbreviations may be used.

Item 8. Doses received over a period of less than a calendar quarter need not be separately entered on the form provided that the licensee or registrant maintains a current record of the doses received by the individual which have not as yet been entered on the form. The period of exposure should specify the day the measurement of that exposure was initiated and the day on which it was terminated. For example, if only quarterly doses are entered, the period of exposure for the first calendar quarter of 1962 might be taken as running from Monday, January 1, 1962, through Friday, March 30,

1962, and would be indicated in this item as Jan. 1, 1962-Mar. 30, 1962. If weekly doses are entered, a film badge issued Monday morning, January 1, 1962, and picked up Friday, January 5, 1962, would be indicated as Jan. 1, 1962-Jan. 5, 1962.

Items 9, Self-explanatory. The values are to be given in rem. All 10 and measurements are to be interpreted in the best method 11.

known and in accordance with Section A.3 (c). Where calculations are made to determine dose, a copy of such calculations is to be maintained in conjunction with this record. In any case where the dose for a calendar quarter is less than 10% of the value specified in Section C.101 (a), the phrase "less than 10%" may be entered in lieu of a numerical value.

Item 12. Add the values under Items 9, 10 and 11 for each period of exposure and record the total. In calculating the "Total" any entry "less than 10%" may be disregarded.

Item 13. The running total is to be maintained on the basis of calendar quarters. Section A.2 (a) (6) defines calendar quarter. No entry need be made in this item if only calendar quarter radiation doses are recorded in Items 9, 10, 11 and 12.

Lifetime Accumulated Dose (Whole Body)

Note: If the licensee or registrant chooses to keep the individual's exposure below that permitted in Section C.101 (a), Items 14 through 18 need not be completed. However, in that case the total whole body dose for each calendar quarter recorded in Item 13 (or in Item 12 if quarterly doses are entered in Item 12) should not exceed 1 1/4 rem.

If an individual is exposed under the provisions of Section C.101 (b), complete Items 14 through 18 at the end of each calendar quarter and when the sheet is filled. Values in Item 13, when in the middle of a calendar quarter, and values in Item 18, must be brought forward to next sheet for each individual.

Item 14. Enter the previous total accumulated dose from previous records for the individual (e.g., from Item 16 of Agency Form or Item 11 of Agency Form). The total occupational radiation dose received by the individual must be entered in this item, including any occupational dose received from sources of radiation not licensed or registered by the Agency. If the individual was exposed to sources of radiation not licensed or registered by the Agency during any calendar quarter after completing Agency Form and personnel monitoring equipment was not worn by the individual, it should be assumed that the individual received a dose of 1 1/4 rems during each such calendar quarter.

Item 15. Enter the total calendar quarter dose from Item 13 (or from Item 12 if quarterly doses are entered in Item 12) and the date designating the end of the calendar quarter in which the dose was received (e.g., March 30, 1962).

Item 16. Add Item 14 and Item 15 and enter that sum.

Item 17. Obtain the Permissible Accumulated Dose (PAD) in rem for the WHOLE BODY. "N" is equal to the number of years of age of the individual on his last birthday. Subtract 18 from N and multiply the difference by 5 rem (e.g., John Smith, age 32; N=32, PAD=5 (32-18)=70 rem).

Item 18. Determine the unused part of the PAD by subtracting Item 16 from Item 17. The unused part of the PAD is that portion of the Lifetime Accumulated Dose for the individual remaining at the end of the period covered by this sheet.

NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION

PART D
RADIATION SAFETY REQUIREMENTS FOR INDUSTRIAL
RADIOGRAPHIC OPERATIONS

EFFECTIVE DATE AUGUST 1, 1964

FIRST REVISION JANUARY 1, 1967
(see list of amendments)

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

PURPOSE AND SCOPE

Sec. D.1 Purpose. The regulations in this part establish radiation safety requirements for persons utilizing sources of radiation for industrial radiography. The requirements of this part are in addition to and not in substitution for, nor do they exempt the licensee or registrant from complying with, the other requirements of these regulations.

Sec. D.2 Scope. The regulations in this part apply to all licensees or registrants who use sources of radiation for industrial radiography. Nothing in this part shall apply to uses of sources of radiation in the healing arts.

DEFINITIONS

Sec. D.3 Definitions. As used in this part:

(a) "Industrial radiographer" means any individual who performs or who, in attendance at the site where sources of radiation are being used, personally supervises industrial radiographic operations and who is responsible to the licensee or registrant for assuring compliance with the requirements of these regulations and all license conditions.

(b) "Industrial radiographer's assistant" means any individual who, under the personal supervision of an industrial radiographer, uses sources of radiation, related handling tools, or survey instruments in industrial radiography.

(c) "Industrial radiography" means the examination of the macroscopic structure of materials by nondestructive methods, utilizing sources of radiation.

(d) "Radiographic exposure device" means any instrument containing a sealed source fastened or contained therein, in which the sealed source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure.

(e) "Storage container" means a device in which sealed sources are transported or stored.

GENERAL REQUIREMENTS

Sec. D.4 Locking of Sources of Radiation. Each source of radiation shall be provided with a lock or outer locked container designed to prevent unauthorized or accidental production of radiation, or removal, or exposure of a sealed source. Each source of radiation shall be kept locked at all times except when under the direct surveillance of an industrial radiographer or industrial radiographer's assistant, or as may be otherwise authorized pursuant to Section D.7(e). Each storage container shall be provided with a lock. Each storage container shall be kept locked when containing sealed sources except when the container is under the direct surveillance of an industrial radiographer or industrial radiographer's assistant.

Sec. D.5 Radiation Surveys. (a) Instruments. The licensee or registrant shall maintain sufficient calibrated and operable radiation survey instruments to make physical radiation surveys as required by this part and Part C of these regulations. Each radiation survey instrument shall be calibrated at intervals not to exceed three (3) months and after each instrument servicing. A permanent record shall be maintained of the dates of calibration. Instrumentation required by this section shall have a range such that two milliroentgens per hour through one roentgen per hour can be measured

(b) Operations. No industrial radiography shall be conducted unless calibrated and operable radiation survey instrumentation as described in Section D.5(a) is available and used at each site where industrial radiographic exposures are made.

Sec. D.6 Utilization Logs. Each licensee or registrant shall maintain current logs, which shall be kept available for inspection by the Agency or its authorized representative, showing for each source of radiation the following information:

(a) A description of each source of radiation, e.g., the make and model number of a radiation machine, or radiographic exposure device, or storage contained in which a sealed source is located;

(b) The identity of the industrial radiographer to whom the source of radiation is assigned; and

(c) Locations where used and dates of use.

(d) The voltage, current, and exposure time for each radiographic exposure employing a radiation machine.

Sec. D.7 Radiation Safety Requirements. (a) Instruction of Industrial Radiographer. No licensee or registrant shall permit any person to act as an industrial radiographer as defined in this part until such person:

(1) Has been instructed in the subjects outlined in Appendix A of this part and shall have demonstrated understanding thereof;

(2) Has received copies of and instruction in the regulations contained in this part and the applicable sections of Part C, Agency license(s), and the licensee's or registrant's operating and emergency procedures, and shall have demonstrated understanding thereof; and

(3) Has demonstrated competence to use the source of radiation, related handling tools, and survey instruments which will be employed in his assignment.

(b) Instruction of Industrial Radiographer's Assistant. No licensee or registrant shall permit any person to act as an industrial radiographer's assistant as defined in this part until such person:

(1) Has received copies of and instructions in the licensee's or registrant's operating and emergency procedures, and shall have demonstrated understanding thereof; and

(2) Has demonstrated competence to use under the personal supervision of the industrial radiographer the sources of radiation, related handling tools, and radiation survey instruments which will be employed in his assignment.

(c) Operating and Emergency Procedures. The licensee's or registrant's operating and emergency procedures shall include at least the following:

(1) The handling and use of sources of radiation to be employed such that no person is likely to be exposed to radiation doses in excess of the limits established in Part C "Standards For Protection Against Radiation";

- (2) Methods and occasions for conducting radiation surveys;
- (3) Methods for controlling access to radiographic areas;
- (4) Methods and occasions for locking and securing sources of radiation;
- (5) Personnel monitoring and the use of personnel monitoring equipment;
- (6) Transportation to field locations, if applicable, including packing of sources of radiation in the vehicles, posting of vehicles, and control of sources of radiation during transportation;
- (7) Minimizing exposure of persons in the event of an accident or malfunction;
- (8) The procedure for notifying proper persons in the event of an accident or malfunction; and
- (9) Maintenance of records.

(d) Personnel Monitoring Control. (1) No licensee or registrant shall permit any person to act as an industrial radiographer or as an industrial radiographer's assistant unless, at all times during industrial radiography, each such person shall wear a film badge and either a pocket dosimeter or pocket chamber. Pocket dosimeters and pocket chambers shall be capable of measuring doses from zero to at least 200 milliroentgens. A film badge shall be assigned to and worn by only one person.

(2) Pocket dosimeters and pocket chambers shall be read and doses recorded daily. A film badge shall be immediately processed if a pocket chamber or pocket dosimeter is discharged beyond its range. The film badge reports received from the film badge processor and records of pocket dosimeter and pocket chamber readings shall be maintained for inspection by the Agency.

(e) Security. During each radiographic operation, the industrial radiographer or industrial radiographer's assistant shall maintain a direct surveillance of the operation to protect against unauthorized entry into a high radiation area, as defined in Part C, except (1) where the high radiation area is equipped with a control device or an alarm system as described in Section C.203(c)(2), or

(2) Where the high radiation area is locked to protect against unauthorized or accidental entry.

(f) Posting. Notwithstanding any provisions in Section C.204(c), areas in which industrial radiography is being performed shall be conspicuously posted as required by Section C.203(b) and (c)(1).

Sec. D.8 Quarterly Inventory. Each licensee for industrial radiography and each registrant for mobile or portable industrial radiography utilizing radiation machines shall conduct a quarterly physical inventory to account for all sources of radiation received or possessed by him. The records of the inventories shall be maintained for inspection by the Agency and shall include the quantities and kinds of radioactive material, the location of all sealed sources of radiation, the location of each mobile or portable radiation machine, and the date of inventory.

SPECIAL REQUIREMENTS FOR INDUSTRIAL RADIOGRAPHY UTILIZING
RADIOACTIVE MATERIAL SOURCES

Sec. D. 101 General. All requirements of Sections D.4, D.5, D.6, and D.7 apply to industrial radiography utilizing radioactive materials.

Sec. D.102 Limits on Levels of Radiation for Radiographic Exposure Devices and Storage Containers. Radiographic exposure devices measuring less than four (4) inches from the sealed source storage position to any exterior surface of the device shall have no radiation level in excess of 50 milliroentgens per hour at six (6) inches from any exterior surface of the device. Radiographic exposure devices measuring a minimum of four (4) inches from the sealed source storage position to any exterior surface of the device, and all storage containers for sealed sources or outer containers for radiographic exposure devices, shall have no radiation level in excess of 200 milliroentgens per hour at any exterior surface, and ten (10) milliroentgens per hour at one meter from any exterior surface. The radiation levels specified are with the sealed source in the shielded (i.e., "off") position.

Sec. D.103 Radiation Surveys and Survey Records. (a) A physical radiation survey shall be made after each radiographic exposure utilizing radiographic exposure devices or sealed sources of radioactive material to determine that the sealed source has been returned to its shielded condition.

(b) A physical radiation survey shall be made to determine that each sealed source is in its shielded condition prior to securing the radiographic exposure device or storage container as specified in Section D.4.

(c) Records shall be kept of the surveys required by paragraph (b) of this section and maintained for inspection by the Agency.

Sec. D.104 Storage Precautions. Locked radiographic exposure devices and storage containers shall be physically secured to prevent tampering or removal by unauthorized personnel.

Sec. D.105 Leak Testing, Repair, Tagging, Opening, Modification, and Replacement of Sealed Sources. (a) The replacement of any sealed source fastened to or contained in a radiographic exposure device and leak testing, repair, tagging, opening, or any other modification of any sealed sources shall be performed only by persons specifically authorized to do so by the Agency, the United States Atomic Energy Commission, or any agreement state.

(b) Each sealed source shall be tested for leakage at intervals not to exceed months, or at any other time when the source has been subjected to sufficiently excessive heat or evident damage as to affect adversely the integrity of the seal. In the absence of a certificate from a transferor that a test has been so made prior to the transfer, the sealed source shall not be put into use until tested.

(c) The leak test shall be capable of detecting the presence of 0.005 microcurie of removable contamination on the sealed source. An acceptable leak test for sealed sources in the possession of a radiography licensee would be to test at the nearest accessible point to the sealed source storage position, or other appropriate measuring point, by a procedure to be approved pursuant to Section B.2.(f)

() of Part B. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Agency.

(d) Any test conducted pursuant to paragraphs (b) and (c) of this section which reveals the presence of 0.005 microcurie or more of removable radioactive material shall be considered evidence that the sealed source is leaking. The licensee shall immediately withdraw the equipment involved from use and shall cause it to be decontaminated and repaired or to be disposed of, in accordance with regulations of the Agency. Within 5 days after obtaining results of the test, the licensee shall file a report with the Agency describing the equipment involved, the test results, and the corrective action taken.

(e) A sealed source which is not fastened to or contained in a radiographic exposure device shall have permanently attached to it a durable tag at least one (1) inch square bearing the prescribed radiation caution symbol in conventional colors, magenta or purple on a yellow background, and at least the instructions: "Danger - Radioactive Material - Do not Handle - Notify Civil Authorities if Found".

SPECIAL REQUIREMENTS FOR INDUSTRIAL RADIOGRAPHY UTILIZING RADIATION MACHINES

Sec. D.201 General. The requirements of Sections D.4, D.5, D.6, and D.7 apply to industrial radiography utilizing radiation machines, except as listed in Section D.202(b).

Sec. D.202 Cabinet radiography. (a) Definition as used in this part: "Cabinet radiography" means industrial radiography using radiation machines, which is conducted in an enclosed, interlocked cabinet, such that the radiation machine will not operate unless all openings are securely closed, and which cabinet is so shielded that every location on the exterior meets conditions for an unrestricted area as specified in Section C.105.

(b) Special exemptions. Cabinet radiography shall comply with all requirements of these regulations except Section D.5(a), Section D.5(b), and Section D.6.

Sec. D.203 Shielded Room Radiography. (a) Definition as used in this part: "Shielded room radiography" means industrial radiography using radiation machines which is conducted in an enclosed room, the interior of which is not occupied during radiographic operations, which is so shielded that every location on the exterior meets conditions for an unrestricted area as specified in Section C.105, and the only access to which is through openings which are interlocked so that the radiation machine will not operate unless all openings are securely closed.

(b) Operations of Shielded Room Radiography. (1) No registrant shall permit any individual to operate a radiation machine for shielded room radiography until such individual has received a copy of, and instruction in, and demonstrated an understanding of operating procedures for this unit, and has demonstrated competence in its use.

(2) A physical radiation survey, shall be conducted to determine that the radiation machine is "off" prior to each entry into the shielded room. Such surveys shall be made with a radiation measuring instrument capable of measuring radiation of the energies and at the dose rates to be encountered, which is in good working order, and which has been properly calibrated within the preceding three months or following the last instrument servicing, whichever is later.

Sec. D.204 Mobile or Portable Industrial Radiography Utilizing Radiation Machines.

(a) Definition. As used in this part mobile or portable industrial radiography means industrial radiography utilizing radiation machines except "cabinet radiography" and "shielded room radiography" and except other industrial radiography identified in compliance with Section D.205.

(b) Mobile or Portable Industrial Radiography Operations. (1) A physical radiation survey shall be conducted to determine that the radiation machine is "off" prior to each entry into the radiographic exposure area. Survey results and records of boundary locations shall be maintained and kept available for Agency inspection.

(2) Mobile or portable radiation machines shall be physically secured to prevent removal by unauthorized personnel.

Sec. D.205 Other Industrial Radiography. (a) Definitions. Industrial radiography to which Sections D.202, D.203, and D.204 do not apply shall be identified to the Agency by each individual subject to these regulations.

(b) Specific requirements. The Agency shall specify to each registrant for other industrial radiography any special requirements which shall apply to the radiation machine concerned.

PART D

APPENDIX A

INSTRUCTION OF INDUSTRIAL RADIOGRAPHERS

- I. Fundamentals of radiation safety.
 - A. Characteristics of gamma and X-radiation.
 - B. Units of radiation dose (mrem) and quantity of radioactivity (curie).
 - C. Hazards of excessive exposure of radiation.
 - D. Levels of radiation from sources of radiation.
 - E. Methods of controlling radiation dose.
 1. Working time.
 2. Working distances.
 3. Shielding.
- II. Radiation detection instrumentation to be used.
 - A. Use of radiation survey instruments.
 1. Operation.
 2. Calibration.
 3. Limitations
 - B. Survey techniques.
 - C. Use of personnel monitoring equipment.
 1. Film badges.
 2. Pocket dosimeters.
 3. Pocket chambers.
- III. Radiographic equipment to be used.
 - A. Remote handling equipment or controls.
 - B. Radiographic exposure devices, sealed sources, and storage containers; and/or operation and control of X-ray equipment.
- IV. The requirements of pertinent Federal and State regulations.
- V. The licensee's or registrant's written operating and emergency procedures.

NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION

PART E
STANDARDS FOR USE OF X-RAYS IN THE HEALING ARTS

EFFECTIVE DATE AUGUST 1, 1964

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

Part E

STANDARDS FOR USE OF X-RAYS IN THE HEALING ARTS

Sec. E.1 Scope. This Part establishes standards for use of X-rays in medicine, dentistry, osteopathy, chiropractic, podiatry, and veterinary medicine. /1/ The provisions of this Part are in addition to, and not in substitution for, other applicable provisions of these regulations.

Sec. E.2 Definitions. (a) "Aluminum equivalent" means the thickness of aluminum affording the same attenuation, under specified conditions, as the material in question.

(b) "Attenuation" means decrease in exposure rate of radiation caused by passage through material.

(c) "Dead-man switch" means a switch so constructed that a circuit-closing contact can only be maintained by continuous pressure by the operator.

(d) "Diagnostic-type tube housing" means an X-ray tube housing so constructed that the leakage radiation at a distance of 1 meter from the target cannot exceed 100 milliroentgens in 1 hour when the tube is operated at any of its specified ratings.

(e) "Filter" means material placed in the useful beam to absorb preferentially the less penetrating radiations.

(f) "Half-value layer (hvl)" means the thickness of an absorber required to reduce a beam of radiation to one-half its incident exposure dose rate.

(g) "Inherent filtration" means the filtration in the useful beam due to the window of the X-ray tube and any permanent tube enclosure.

(h) "Interlock" means a device for precluding access to an area of radiation hazard either by preventing entry or by automatically removing the hazard.

(i) "Kilovolts peak (kvp)" means the crest value in kilovolts of the potential of a pulsating potential generator. When only one-half of the wave is used, the value refers to the useful half of the wave.

(j) "Lead equivalent" means the thickness of lead affording the same attenuation, under specified conditions, as the material in question.

(k) "Leakage radiation" means all radiation coming from within the tube housing except the useful beam.

(l) "Primary protective barrier" means a barrier sufficient to attenuate the useful beam to the required degree.

/1/ The registrant's attention is directed to Section A.1 and Section E.3(c). No registrant shall operate or permit the operation of X-ray equipment unless such operation will meet the requirements of these regulations.

(m) "Protective apron" means an apron made of attenuating materials, used to reduce radiation exposure.

(n) "Protective barrier" means a barrier of attenuating materials used to reduce radiation exposure.

(c) "Protective glove" means a glove made of attenuating materials used to reduce radiation exposure.

(p) "Scattered radiation" means radiation that, during passage through matter, has been deviated in direction.

(q) "Secondary protective barrier" means a barrier sufficient to attenuate stray radiation to the required degree.

(r) "Shutter" means a device, generally of lead, fixed to an X-ray tube housing to intercept the useful beam.

(s) "Stray radiation" means radiation not serving any useful purpose. It includes leakage and secondary radiation.

(t) "Therapeutic-type tube housing" means an X-ray tube housing so constructed that the leakage radiation at a distance of 1 meter from the target cannot exceed 1 roentgen in 1 hour; and at a distance of 5 centimeters from any point on the surface of the housing accessible to the patient cannot exceed 30 roentgens in 1 hour when the tube is operated at any of its specified ratings.

(u) "Useful beam" means that part of the radiation which passes through the window, aperture, cone, or other collimating device of the tube housing.

Sec. E.3 General Safety Provisions. (a) The Agency may waive compliance with the specific requirements of this Part by an existing machine or installation if the registrant demonstrates, to the Agency's satisfaction, achievement through other means of radiation protection equivalent to that required by these regulations.

(b) No person shall make, sell, lease, transfer, lend, install, or service X-ray or fluoroscopic equipment or the supplies used in connection with such equipment, unless such supplies and equipment, when properly placed in operation and properly used, will meet the requirements of these regulations. This includes responsibility for the delivery of cones or collimators, filters, adequate timers and fluoroscopic shutters (where applicable).

(c) Use.

(1) The registrant shall be responsible for assuring that all requirements of this Part are met./2/

(2) The registrant shall assure that all X-ray equipment under his control is operated only by individuals instructed in safe operating procedures and competent in safe use of the equipment sufficiently to comply with these regulations.

/2/ Throughout this part "registrant" shall mean the person complying with Section B.60.

(3) The registrant shall make available to each individual operating equipment under his control current copies of regulations issued by the Agency.

(4) The registrant shall provide safety rules to the individuals operating X-ray equipment under his control, including any restrictions of the operating technique required for the safe operation of the particular X-ray apparatus, and require that the operators demonstrate familiarity with these rules.

Sec. E.4 Fluoroscopic Installations.

(a) Equipment

(1) The tube housing shall be of diagnostic type.

(2) The target-to-panel or target-to-table top distance of present equipment and that to be installed before 1 July 1964 shall not be less than 12 inches, and shall not be less than 18 inches in equipment installed thereafter.

(3) The total filtration permanently in the useful beam shall not be less than 2.5 millimeters aluminum equivalent, or the half-value layer shall not be less than 2.5 millimeters aluminum at normal operating voltages.

(4) The equipment shall be so constructed that the entire cross-section of the useful beam is attenuated by a primary barrier located between the tube and the diagnostician.

(A) (1) For equipment installed before 1 July 1964 the required lead equivalent of the barrier shall not be less than 1.5 millimeters for up to 100 kvp, shall not be less than 1.8 millimeters for 101 to 125 kvp, or shall not be less than 2.0 millimeters for 126 to 150 kvp.

(2) For equipment installed after 1 July 1964, the required lead equivalent of the barrier shall not be less than 2.0 millimeters for up to 100 kvp, shall not be less than 2.4 millimeters for 101 to 125 kvp, or shall not be less than 2.7 millimeters for 126 to 150 kvp.

(3) Insofar as related to the provisions of paragraphs (A)(1) and (A)(2) of this subsection, for conventional fluoroscopes the exposure dose rate measured at the viewing surface of the fluorescent screen shall be assumed to not exceed 50 milliroentgens per hour with the screen in the primary beam of the fluoroscope without a patient, under normal operating conditions.

(B) Collimators shall be provided to restrict the size of the useful beam to less than the area of the primary barrier. For conventional fluoroscopes when the adjustable diaphragm is opened to its fullest extent, an unilluminated margin shall be left on the fluorescent screen with the screen centered in the beam at a distance of 35 centimeters (14 inches) from the panel or table top. The margin requirement does not apply to installations where image intensifiers are used, but a protective shield shall be provided in these installations so that the useful beam is attenuated by an amount equivalent to that caused by the primary barrier.

(C) The tube mounting and the barrier shall be so linked together that, under conditions of normal use, the barrier always intercepts the useful beam.

(D) Collimators and adjustable diaphragms or shutters to restrict the size of the useful beam shall provide a minimum of 2.0 millimeters lead equivalent protection for up to 100 kvp, 2.4 millimeters for 101 to 125 kvp or 2.7 millimeters for 126 to 150 kvp.

(5) The exposure switch shall be of the dead-man type.

(6) A manual reset, cumulative timing device shall be used which will indicate elapsed time by an audible signal or turn off the apparatus when the exposure exceeds a pre-determined limit in one or a series of exposures. The device shall have a maximum limit of 5 minutes.

(7) For routine fluoroscopy, the exposure rate measured in the useful beam at the panel or table top should be as low as practicable and shall not exceed 10 roentgens per minute.

(8) Mobile fluoroscopic equipment shall meet the requirements of this section. In the absence of a table top, a cone or spacer frame shall limit the target-to-skin distance to not less than 12 inches. When measured at the minimum target-to-skin distance, the dose rate shall not exceed 10 roentgens per minute. It shall be impossible to operate a machine when the collimating cone or diaphragm is not in place.

Sec. E.5 Radiographic Installations Other Than Dental And Veterinary Medicine.

(a) Equipment.

(1) The tube housing shall be of diagnostic type.

(2) Diaphragms or cones capable of restricting the beam to the area of clinical interest shall be provided for collimating the useful beam and shall provide the same degree of protection as is required of the tube housing.

(3) (A) The total filtration permanently in the useful beam shall be equivalent to at least 2.5 mm of aluminum, or the half-value layer shall be not less than 2.5 mm aluminum at normal operating voltages.

(4) A device shall be provided to terminate the exposure after a preset time or exposure.

(5) The exposure switch shall be of a dead-man type and so arranged that it cannot be conveniently operated outside a shielded area. Exposure switches for "spot film" devices used in conjunction with fluoroscopic tables are excepted from this shielding requirement.

(b) Structural Shielding.

(1) All wall, floor, and ceiling areas exposed to the useful beam shall have primary barriers. Primary barriers in walls shall extend to a minimum height of 84 inches above the floor.

(2) Secondary barriers shall be provided in all wall, floor, and ceiling areas not having primary barriers or where the primary barrier requirements are lower than the secondary barrier requirements.

(3) The operator's station at the control shall be behind a protective barrier, either in a separate room, in a protected booth, or behind a shield which will intercept the useful beam and any radiation which has been scattered only once.

(4) A window of lead-equivalent glass equal to that required by the adjacent barrier or a mirror system shall be provided large enough and so placed that the operator can see the patient without having to leave the protected area during exposure.

(c) Operating Procedures.

(1) No individual occupationally exposed to radiation shall be permitted to hold patients during exposures except during emergencies, nor shall any individual be regularly used for this service.

(2) Only individuals required for the radiographic procedure shall be in the radiographic room during exposure; and, except for the patient, no unprotected parts of their bodies shall be in the useful beam.

(3) The useful beam shall be restricted to the area of clinical interest.

(4) Gonadal shielding of not less than 2.5 mm lead equivalent or equivalent collimation shall be used to protect every patient under 40 years of age during radiographic procedures except for cases in which such procedure will limit desired medical diagnosis or treatment.

Sec. E.6 Special Requirements For Mobile Diagnostic Radiographic Equipment

(a) Equipment

(1) All requirements of Section E.5(a) apply except E.5 (a) (5).

(2) The exposure control switch shall be of the dead-man type and shall be so arranged that the operator can stand at least 6 feet from the patient and well away from the useful beam.

(b) Structural Shielding.

When a mobile unit is used routinely in one location, it shall meet the shielding requirements specified in E.5(b).

(c) Operating Procedures.

(1) All provisions of Section E.5(c) apply except E.5 (c) (2).

(2) The target-to-skin distance shall be not less than 12 inches.

(3) Personnel monitoring shall be required for all individuals operating the equipment.

Sec. E.7 Special Requirements For Chest Photofluorographic Installations.

(a) Equipment.

(1) All provisions of Section E.5(a) apply.

(2) A collimator shall restrict the useful beam to the area of the photofluorographic screen.

(b) Structural Shielding.

(1) All provisions of Section E.5(b) apply.

(c) Operating Procedures.

(1) All provisions of Section E.5(c) apply.

(2) All individuals except the patient being examined shall be in shielded positions during exposure.

(3) Personnel monitoring shall be required for all individuals operating the equipment.

Sec. E.8 Dental Radiographic Installations.

(a) Equipment.

(1) The tube housing shall be of diagnostic type.

(2) Diaphragms or cones shall be used for collimating the useful beam and shall provide the same degree of protection as the tube housing. The diameter of the useful beam at the cone tip shall not be more than 3 inches unless the Agency, upon receipt of written request, authorizes exceeding that value.

(3) A cone or spacer frame shall provide a target-to-skin distance of not less than 7 inches with apparatus operating above 50kvp or 4 inches with apparatus operating at 50 kvp or below.

(4) (A) For equipment operating up to 70 kvp, the total filtration permanently in the useful beam shall be equivalent to at least 1.5 mm of aluminum, or the half-value layer shall be not less than 1.5 mm aluminum at normal operating voltages.

(B) For equipment operating above 70 kvp, the total filtration permanently in the useful beam shall be equivalent to at least 2.5 mm of aluminum, or the half-value layer shall be not less than 2.5 mm aluminum at the normal operating voltages.

(5) A device shall be provided to terminate the exposure after a pre-set time or exposure.

(6) The exposure control switch shall be of the dead-man type.

(7) Each installation shall either be provided with a protective barrier for the operator or shall be so arranged that the operator can stand at least 6 feet from the patient and well away from the useful beam.

(b) Structural Shielding.

(1) Dental rooms containing x-ray machines shall be provided with primary barriers at all areas struck by the useful beam. Consideration shall be given to the attenuation provided by the patient.

(2) When dental x-ray units are installed in adjacent rooms or areas, protective barriers as specified in Section E.8(b)(1) shall be provided between the rooms or areas.

(c) Operating Procedures.

(1) Neither the dentist nor his assistant shall be permitted to hold patients or films during exposure, nor shall any individual be regularly used for this service.

(5) Interlocks shall be provided so that when any door or other access to the treatment room is opened either the machine will shut-off automatically or the radiation level within the room will be reduced to an average of not more than 2 milliroentgens per hour and a maximum of 10 milliroentgens per hour at a distance of 1 meter in any direction from the target. After such shut-off or reduction in output it shall be possible to restore the machine to full operation only from the control panel.

(6) Provision shall be made to permit continuous observation of patients during irradiation.

(7) Windows, mirror systems, or closed-circuit television viewing screens used for observing the patient shall be so located that the operator may see the patient and the control panel from the same position.

(c) Operating Procedures.

(1) No individual who works with radiation, unless he is the patient, shall be in the treatment room during exposure. No other individual shall be there except when it is clinically necessary. If an individual is required to be in the treatment room with the patient during exposure, he shall be adequately protected from scattered radiation, and shall not be in the useful beam.

Sec. E.10 Special Requirements for X-Ray Therapy Equipment Operated At Potentials Of 60 KV And Below.

(a) Equipment.

(1) All provisions of Section E.9(a) apply except, for equipment used for "contact therapy," E.9 (a) (1), in which instance the leakage radiation at the surface of the tube housing shall not exceed 0.1 roentgen per hour.

(2) There shall be on the control panel some easily discernible device which will give positive information as to whether or not the tube is energized.

(b) Operating Procedures.

(1) Automatic timers shall be provided which will permit accurate pre-setting and determination of exposures as short as one second.

(2) In the therapeutic application of apparatus constructed with beryllium or other low-filtration windows the registrant shall insure that the unfiltered radiation reaches only the part intended and that the useful beam is blocked at all times except when actually being used.

(3) Machines having an output of more than 1,000 roentgens per minute at any accessible place shall not be left unattended without the power being shut-off at the primary disconnecting means.

(4) If the tube is hand-held during irradiation, the operator shall wear protective gloves and aprons.

Sec. E.11 Veterinary Medicine Radiographic Installations.

(a) Equipment

(1) The tube housing shall be of diagnostic type.

(2) During each exposure, the operator shall stand at least 6 feet from the patient or behind a protective barrier.

(3) Only the patient shall be in the useful beam.

(4) Neither the tube housing nor the pointer cone shall be hand-held during exposure.

(5) Fluoroscopy shall not be used in dental examinations.

Sec. E.9 Therapeutic X-Ray Installations.

(a) Equipment

(1) The tube housing shall be of therapeutic type.

(2) Permanent diaphragms or cones used for collimating the useful beam shall afford the same degree of protection as the tube housing. Adjustable or removable beam-defining diaphragms or cones shall transmit not more than 5 per cent of the useful beam obtained at the maximum kilovoltage and with maximum treatment filter.

(3) Filters shall be secured in place to prevent them from dropping out during treatment. The filter slot shall be so constructed that the radiation escaping through it does not exceed 1 roentgen per hour at 1 meter, or, if the radiation from the slot is accessible to the patient, 30 roentgens per hour at 5 centimeters from the external opening.

(4) The X-ray tube shall be so mounted that it cannot turn or slide with respect to the aperture.

(5) Means shall be provided to immobilize the tube housing during stationary portal treatment.

(6) A timer shall be provided to terminate the exposure after a pre-set time regardless of what other exposure limiting devices are present.

(7) Equipment utilizing shutters to control the useful beam shall have a shutter position indicator on the control.

(8) There shall be on the control panel an easily discernible indicator which will give positive information as to whether or not the X-ray tube is energized.

(b) Structural Shielding.

(1) All wall, floor, and ceiling areas that can be struck by the useful beam, plus a border of one foot, shall be provided with primary protective barriers.

(2) All wall, floor, and ceiling areas that, because of restrictions in the orientation of the useful beam, cannot be struck by the useful beam shall be provided with secondary barriers.

(3) With equipment operating above 125 kvp, the required barriers shall be an integral part of the building.

(4) With equipment operating above 150 kvp, the control station shall be within a protective booth or outside the treatment room.

NORTH CAROLINA REGULATIONS
FOR PROTECTION AGAINST RADIATION

PART F
STANDARDS FOR USE OF SEALED RADIOACTIVE SOURCES
IN THE HEALING ARTS

EFFECTIVE DATE AUGUST 1, 1964

SUPPLEMENT TO THE STATE BOARD OF HEALTH BULLETIN

Part F

USE OF SEALED RADIOACTIVE SOURCES IN THE HEALING ARTS

Sec. F.1 Scope. The provisions of this Part apply to all licensees who use sealed sources in medicine or veterinary medicine and are in addition to, and not in substitution for, other applicable provisions of these regulations.

Sec. F.2 Interstitial, Intracavitary and Superficial Applications. (a) Accountability, Storage and Transit:

(1) Each licensee shall provide accountability of sealed sources and shall keep a permanent record of the issue and return of all sealed sources.

(2) When not in use, sealed sources and applicators containing sealed sources shall be kept in a protective enclosure of such material and wall thickness as may be necessary to assure compliance with the provisions of Sections C.101, C.104, and C.105.

(b) Testing Sealed Sources for Leakage and Contamination.

(1) The licensee shall provide for testing for contamination prior to initial use. All sealed sources shall be tested for leakage at least every six months. In addition, a sealed source which has been dropped or otherwise damaged, shall be tested for leakage before further use.

(2) Leak tests shall be capable of detecting the presence of 0.005 microcuries of removable contamination on the sealed source. When any test conducted pursuant to Section F.2 (b)(1) reveals the presence of 0.005 microcuries or more of removable contamination, the licensee shall immediately withdraw the source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with applicable provisions of Part B.

Sec. F.3 Teletherapy. (a) Equipment:

(1) The housing shall be so constructed that, at 1 meter from the source, the maximum dose rate does not exceed 10 milliroentgens per hour when the beam control mechanism is in the "off" position. The average dose rate measured at a representative number of points about the housing, each one meter from the source, shall not exceed 2 milliroentgens per hour.

(2) For teletherapy equipment installed after the effective date of these regulations the leakage radiation measured at one meter from the source when the beam control mechanism is in the "on" position shall not exceed the larger of 1 roentgen per hour or 0.1 per cent of the useful beam.

(3) Adjustable or removable beam-defining diaphragms shall allow transmission of not more than 5 per cent of the useful beam dose rate.

(4) The beam control mechanism shall be of a positive design capable of acting in any position of the housing. In addition to an automatic closing device, the mechanism shall be designed so that it can be manually returned to the "off" position with a minimum risk of exposure.

(5) The closing device shall be so designed as to return automatically to the "off" position in the event of any breakdown or interruption of the activating force and shall stay in the "off" position until activated from the control panel.

(6) When any door to the treatment room is opened, the beam control mechanism shall automatically and rapidly restore the unit to the "off" position and cause it to remain there until the unit is reactivated from the control panel.

(7) There shall be at the housing and at the control panel a warning device that plainly indicates whether the beam is on or off.

(8) The equipment shall be provided with a locking device to prevent unauthorized use.

(9) The control panel shall be provided with a timer that automatically terminates the exposure after a preset time.

(10) Teletherapy sources shall be tested for leakage and contamination in accordance with the procedures described in Section F.2(b) except that the leak tests shall be capable of detecting 0.05 microcuries of removable contamination, and a source shall be considered to be leaking if the test reveals the presence of 0.05 microcuries or more of removable contamination.

(b) Shielding.

(1) Primary protective barriers shall be provided for any area that the useful beam may strike when using the largest possible diaphragm opening.

(2) Secondary protective barriers shall be provided for all occupied areas exposed to leakage and scattered radiation.

(3) Provision shall be made to permit continuous observation of patients during irradiation.

(c) Operation. No individual who is occupationally exposed to radiation shall be in the treatment room during irradiation unless he is the patient. No other individual shall be there except when it is clinically necessary.

(d) Inspections. The provisions of Section F.2(b) shall apply except that tests of leakage may be made by wiping accessible surfaces of the housing port or collimator while the source is in the "off" position and measuring these wipes for transferred contamination.



STATE OF NORTH CAROLINA

JAMES E. HOLSHOUSER, JR.
GOVERNOR

DAVID T. FLAHERTY
SECRETARY

DEPARTMENT OF HUMAN RESOURCES

Division of Health Services

WESTERN REGIONAL OFFICE
WESTERN NORTH CAROLINA SANITORIUM
BUILDING 3
BLACK MOUNTAIN, N.C. 28711

JACOB KOOMEN, M.D., M.P.H.
DIRECTOR

April 11, 1977

Mr. Chester West, Director
Burke County Department of Community Planning
P. O. Box 219
Morganton
North Carolina 28655



Dear Mr. West:

During recent inspections of the Morganton and Rhodhiss Sanitary Landfills, I have observed major blowing paper problems. Some method for controlling this problem should be developed as soon as possible. It is felt that the problem with blowing materials results from the "night dumping areas" and the pushing of waste considerable distances from the dumping area to the working face. If these problems are eliminated, then a reduction in blowing materials should be realized. I have continuously advocated an alternative for the "night dumping areas." This procedure is in violation of North Carolina General Statutes 130-166.18, Section .0116, Operational Requirements for Sanitary Landfills, in that dumping is allowed without a site attendant to direct the orderly placement, spreading, compaction, and covering of the waste. I would like to suggest that an adequate alternative for night and week-end dumping be implemented as soon as possible.

I would also like to reiterate from our previous discussions that both sites need erosion control measures.

I will be available for any assistance needed concerning the above suggestions.

Respectfully,

Bill Meyer

Bill Meyer
District Sanitarian
Solid Waste Management

WLM/efm

cc: Mr. U. W. Strickland

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
RALEIGH

April 6, 1977

Mr. Carl D. Hennessey, Superintendent
Department of Water Resources
City of Morganton
Morganton, North Carolina

Re: CR 77-1153
Sludge Handling Project
City of Morganton

Dear Mr. Hennessey:

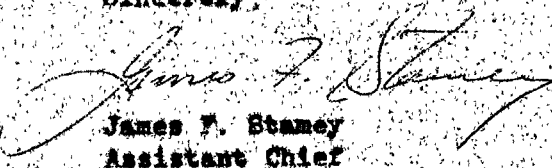
We appreciate your sending to us detailed information on your proposed sludge handling project which was the subject of State Clearinghouse Notification 77-1153.

The land application of sludge as proposed should produce valuable information on the potential of such projects. By copy of this letter, we are advising the Clearinghouse of our concurrence in your proposal along with our recommendation that your request for financial assistance receive favorable consideration.

In as much as such sludge disposal operations will be covered under Federal law (P.L. 94-580) when it becomes effective, we would like to have the opportunity to observe the operations and findings from time to time as the project progresses. We will request a representative of our Solid Waste Program to contact you in the future in this regard.

In the meantime, if we can be of further assistance, please let us know.

Sincerely,


James F. Stamey
Assistant Chief
Sanitary Engineering Section

cc: Chrys Baggett
Howard Ellis
Jerry Perkins ✓
Burke County Health Dept.



Burke
cltR

STATE OF NORTH CAROLINA

JAMES B. HUNT, JR.
GOVERNOR

DEPARTMENT OF HUMAN RESOURCES

JACOB KOOMEN, M.D., M.P.H.
DIRECTOR

Division of Health Services

SARAH T. MORROW, M.D., M.P.H.
SECRETARY

P. O. Box 2091

Raleigh 27602

January 28, 1977

Astro Industries Inc.
P. O. Box 1327
Morganton, N. C. 28655

Dear Sir:

The management of residual industrial wastes which may be hazardous, potentially hazardous, or hard to handle, such as sludges, semi-solids, liquids, etc., has become a major problem in North Carolina.

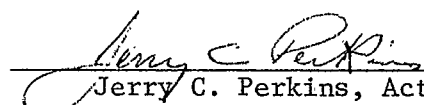
Your assistance is needed to provide the Solid Waste & Vector Control Branch, Division of Health Services, with information on the present status of the management, volume, and composition of these type wastes in North Carolina. This information is needed to develop an orderly and reasonable implementation schedule for Public Law 94-580. The 94th Congress enacted Public Law 94-580 on October 21, 1976. Subtitle C of this Public Law is related to the management of hazardous wastes.

In cooperation with the Environmental Protection Agency, this agency is making a statistical survey of industries in North Carolina to obtain the necessary data for program planning and management of these wastes. A copy of the data collection form is enclosed. It is requested that someone familiar with industrial wastes generated by your facility review the form. The Solid Waste & Vector Control Branch representative that serves your area will contact your company by telephone in the near future to schedule an appointment with your representative so that the data forms may be completed.

If there are questions with reference to this survey, your calls or correspondence should be addressed to:

O. W. Strickland, Program Supervisor
Solid Waste & Vector Control Branch
Division of Health Services
P. O. Box 2091
Raleigh, North Carolina 27602
Telephone: (919) 733-2178

Your cooperation is appreciated.


Jerry C. Perkins, Acting Head

Enclosures

cc: Mr. William L. Meyer

Burke
J+R

December 30, 1976

Mr. L. G. McDougal, Manager
Drexel Heritage Furnishings
Engineering Center
Fleming Drive
P. O. Drawer 1299
Morganton, N. C. 28655

Dear Mr. McDougal:

Your letter of October 5, 1976 arrived in this office on December 28, 1976.

I have discussed the analysis and volume of waste with Dr. R. J. Drye, Environmental Sciences, Laboratory Section, Division of Health Services.

It is our opinion that this waste is not suitable for landfilling. We would recommend that you contact the officials in Caldwell County and investigate the possibility of using their incinerator.

Sincerely,

O. W. Strickland, Supervisor
Solid Waste & Vector Control
Branch
Solid Waste Management Unit
Sanitary Engineering Section

OWS/tg

cc: Mr. William L. Meyer



Drexel Heritage Furnishings
Division of Champion International

Home Furnishings

Engineering Center
Fleming Drive, P.O. Drawer 1299
Morganton, North Carolina 28655

October 5, 1976

North Carolina Department
of Human Resources
Solid Waste Division
Post Office Box 2091
Raleigh, North Carolina 27600

Attention: Mr. O.W. Strictland

Dear Mr. Strictland:

We have a polyester resin casting operation that has accumulated 209, 55-gallon drums of waste material. We need to dispose of the waste and local landfills will not handle it because of the 55-gallon containers and components of the material. We would appreciate your help.

The waste material is a mixture consisting of:

Methylene Chloride	65%
Unsaturated polyester resin ...	18%
Styrene Monomer	12%
Blown Silicone Dioxide Filler .	2%
Aluminum Clay	2%
MEK Peroxide	1%

Styrene Monomer is the only ingredient having a low flash point.

By changing manufacturing procedures, we are not now accumulating any additional waste and expect none in the future. Any help you can furnish toward disposal of the waste we have on hand will be appreciated.

Yours truly,

L.G. McDougal, Manager
Facilities Engineering

LGMCD:ma

cc: Wayne Hitt

*per our telephone conversation
of 12/21/76
L.G. McDougal*



C

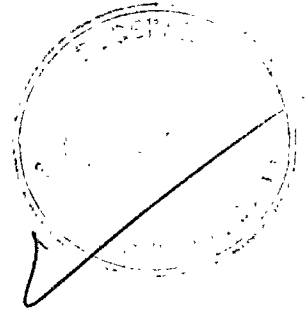
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Y

BURKE COUNTY HEALTH DEPARTMENT
MORGANTON, NORTH CAROLINA

dk



March 15, 1976

Mr. O. W. Strickland
Sanitary Engineering Section
Division of Health Services
Raleigh, NC 27602

Dear Mr. Strickland:

Regarding your phone call about visiting the Burke County sanitary landfills, this would be unnecessary travel, since the request for the use of the landfills by the City of Morganton was withdrawn, and would have been denied any way.

We are not requesting a visit from you on this matter (which has been settled); but if you would like to visit with us on other matters, we would be glad to visit with you.

Sincerely,

James A. Blakley

James A. Blakley (d)
Health Director

dmb

cc Mr. James S. McCormick, Jr.

March 22, 1970

Mr. Arthur Day
Director of Public Works
✓ Burke County
Burke County Offices
Newark, NC 28360

Dear Mr. Day:

I was in Burke County on Wednesday afternoon, March 17, 1970, but was not accompanied by with Mr. James E. Nixley, Health Director, you were not notified.

The main reason for my visit was to introduce Mr. William L. Hoyer, District Sanitarian. Mr. Hoyer has replaced Mrs. James H. Pulp, Sr., who retired on February 1, 1970.

Mr. Hoyer, Mr. Pulp and I are from the local health department, and I still visit the two county Landfills. Mr. Hoyer will be in touch with you in the very near future as there are some major violations at the two Landfills and need immediate attention.

Thank you in advance for your cooperation. I look forward to visiting with you at an early date.

Sincerely,

G. H. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

cc: Mr.

Mr. William L. Hoyer

Burke County Health Department

Burke County Recorder - Mr. Robert T. Gooding

December 1, 1976

Mr. Doyle C. Little
General Manager
Valdese Printing Company
271 W. Main Street
P. O. Box 729
Valdese, N. C. 28690

Dear Mr. Little:

Your letter of November 24, 1976 with reference to the disposal of chemical waste has been received.

This office is primarily involved with the disposal of solid waste. However, if you will give us a breakdown as to the quantity of each of the chemicals that make up your waste, we may be able to help you.

If the chemicals are suitable for landfilling, it may be possible to make a solid waste by using an absorbent such as sawdust or dry clay.

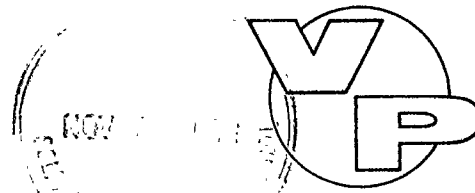
Sincerely,

O. W. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

OWS/tg

cc: Mr. William L. Meyer

Burke
OK



VALDESE PRINTING COMPANY

271 W. MAIN ST., P. O. BOX 729. VALDESE, N. C. 28690, PHONE 879-9336

Mr. George Strickland:

November 24, 1976

Request for varification of chemical material to be placed
in Burke County Landfill. We have around 5 Gallons per week.

If chemical can not be placed in the Burke County Landfill,
what can be done with it. It is very important that we hear
from you as soon as possible.

Attached is a list of ingredients that our supplier of ink -
Wikoff Color Corp. of Charlotte has sent to us.

Sincerely,

VALDESE PRINTING COMPANY

Doyle C. Little /s/

Doyle C. Little
General Manager

LIST OF INGREDIENTS FOR VALDESE PRINTING CO. - FLEXO INK

Cellosolve Solvent

Cellulose Acetate Propionate

Dioctyl Phthalate

Ethyl Alcohol (Anhydrous)

Normal Propyl Acetate

Polymekon Wax

Solvent Soluble Dyes

February 6, 1976

Mr. Lytt I. Gardner
Program Coordinator
Durham County Health Department
Post Office Box 1806
Durham, North Carolina 28602

dlr
Dear Mr. Gardner:

In reply to your letter of February 2, 1976, I am enclosing a copy of the policy statement regarding the disposal of sewage sludge in sanitary landfills.

Very truly yours,

Sidney H. Urry, Esq.
Solid Waste & Vector Control Branch
Sanitary Engineering Section

SHU:bm

cc: Mr. Meyer's File



STATE OF NORTH CAROLINA
DEPARTMENT OF HUMAN RESOURCES
Division of Health Services

JAMES E. HOLSHOUSER, JR.
GOVERNOR

DAVID T. FLAHERTY
SECRETARY

JACOB KOOMEN, M.D., M.P.H.
DIRECTOR

P. O. Box 2091

Raleigh 27602

October 1, 1975

MEMORANDUM

TO: Local Health Departments
Operators of Sanitary Landfills

FROM: Sidney H. Usry, ^{SHU}Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

SUBJECT: Disposal of Digested Sewage Sludge

The following policy statement has been developed in order to clarify the rules and regulations relative to the disposal of digested sewage sludge in sanitary landfills:

This agency has no objections to the acceptance of dried sewage sludge for disposal in approved sanitary landfills. Final approval for disposal in any approved sanitary landfill shall be the responsibility of the local governmental unit or private enterprise operating the sanitary landfill.

SHU:bm

BURKE COUNTY HEALTH DEPARTMENT
MORGANTON, NORTH CAROLINA



February 2, 1976

Mr. Sidney Usry
Solid Waste Vector Control
Division of Health Services
Sanitary Engineering Section
Raleigh, NC 27602

Dear Mr. Usry:

The City of Morganton has asked Burke County for permission to dump semi-liquid sludge from their sewage treatment plant into our sanitary landfill. We have determined, in accordance with our county ordinance, that this sludge would present a health problem since it cannot be compacted, damages the equipment, and is hazardous to the operators.

I would appreciate it if you would write us a letter on this, describing the state's position on landfill disposal of semi-liquid sewage sludge.

Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script, reading "Lytt I. Gardner, Jr.", is written over the typed name.

Lytt I. Gardner
Program Coordinator

A handwritten signature in cursive script, reading "James A. Blakley", is written over the typed name.

James A. Blakley
Health Director

LIG/dmb

Burt
JHR

January 23, 1976

Ms. Ruby Harbison
103 York Street
Morganton, NC 28555

Re: Pollution Help Line Report 2527

Dear Ms. Harbison:

The attached report has been prepared by Mr. O. W. Strickland, Supervisor, Solid Waste Management Unit, following his investigation of your recent complaint concerning the dump at the School for the Deaf in Morganton.

If this office can provide you further information or assistance in this matter, please let us know.

Very truly yours,

Sidney H. Usry, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

bm

Attachment

cc: Mr. Fred Rucisell
Mr. Elmo J. Pascal
Mrs. Jackie Wall

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
SANITARY ENGINEERING SECTION

REPORT OF INVESTIGATION OR INSPECTION OF Pollution Help Line Report 2527

Place visited School for the Deaf Date January 21 19 76

Address Morganton, N. C. Time spent 2 hours

By whom Elmo J. Pascal, Sanitarian Supervisor, Burke County Health Dept; and O. W. Strickland, Supervisor, Solid Waste Management Unit, Division of Health Services

Persons contacted Charles Rusmisell, Maintenance Supervisor, School for the Deaf
(Owner, agent, tenant, manager, other)

Reason for visit Pollution Help Line Report 2527 - Complainant: Ms. Ruby Harbieson

Copies to: Ms. Ruby Harbieson, 103 York Street, Morganton, N. C. 28555
Mr. Fred Rusmisell, School for the Deaf, Morganton, N. C. 28555
Mr. Elmo J. Pascal, Burke County Health Dept., P. O. Box 1266, Morganton, N. C. 28655
Mrs. Jackie Wall, Pollution Help Line, N. C. Dept. of Natural & Economic Resources

REPORT:

The School for the Deaf is using an area on the school property for the disposal of non-putrescible solid waste.

RECOMMENDATIONS:

1. The solid waste on the site that is now being used be compacted and covered with earth.
2. The area be seeded and mulched to prevent erosion.
3. The School seek an area out of the floodplain to place stumps, concrete, limbs, wood, and clean demolition waste (no paper, containers, appliances, garbage).
4. The above listed waste then can be placed on the School property provided it is compacted and an earth fire wall placed over it at least quarterly.

OWS:bm

- Burke
242

January 23, 1976

Mrs. Ruby Harbison
103 York Street
Morganton, NC 28555

Re: Pollution Help Line Report 2527

Dear Ms. Harbison:

The attached report has been prepared by Mr. O. W. Strickland, Supervisor, Solid Waste Management Unit, following his investigation of your recent complaint concerning the dump at Broughton Hospital in Morganton.

If this office can provide you additional information or assistance, I shall appreciate hearing from you.

Very truly yours,

Sidney H. Usary, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

bm

Attachment

cc: Mr. Yates Leatherman
Mr. Elmo J. Pascal
Mrs. Jackie Wall

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
SANITARY ENGINEERING SECTION

REPORT OF INVESTIGATION OR INSPECTION OF Pollution Help Line Report 2527

Place visited Broughton Hospital Date January 21 19 76

Address Morganton, N. C. Time spent 2 hours

By whom Elmo J. Pascal, Sanitarian Supervisor, Burke County Health Dept; and O.W. Strickland, Supervisor, Solid Waste Management Unit, Division of Health Services

Persons contacted Mr. Yates Leatherman, Broughton Hospital
(Owner, agent, tenant, manager, other)

Reason for visit Pollution Help Line Report 2527: Complainant: Ms. Ruby Harbieson

Copies to: Ms. Ruby Harbieson, 103 York Street, Morganton, N. C. 28555
Mr. Yates Leatherman, Broughton Hospital, Box 118, Morganton, N. C. 28655
Mr. Elmo J. Pascal, Burke County Health Dept., P. O. Box 1266, Morganton, N.C. 28655
Mrs. Jackie Wall, Pollution Help Line, N. C. Department of Natural & Economic Resources

REPORT:

The Broughton Hospital is using an area on the hospital property for the burning of limbs and pallets.

RECOMMENDATIONS:

1. All burning be discontinued.
2. Use a chipper for brush.
3. If a chipper is not available for brush, then they should be allowed to dry, then compacted and covered with earth.

OWS:bm

Barber
JVR

January 16, 1976

Mr. Ruby Harrison
101 York Street
Portsmouth, NH 03850

Dear Mr. Harrison:

Re: Pollution Help Line Report 1527

By copy of this letter I am requesting Mr. G. W. Strickland, Supervisor, Solid Waste Management Unit, to visit the dump located beside Broughton Hospital on his next visit to Portsmouth and make recommendations for alleviation of the problem. Mr. Strickland will contact you at the time of his visit.

Very truly yours,

Sidney H. Urry, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

cc: Mr. G. W. Strickland
Mrs. Jackie Hill

NO. 2527

POLLUTION HELP LINE REPORT

DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES

DATE: 1-13-76 19

TIME: AM
PM

NAME OF CALLER: Ms. Ruby Harbieson

ADDRESS: 103 York Street

Street P. O. Box
Morganton, North Carolina 28555

City Zip

TELEPHONE NUMBER: 437-1972(home)-437-8688 (office)

RECEIVED

JAN 16 1976

POINT OF POLLUTION:

SANITARY ENGINEERING SECTION

SOURCE OF POLLUTION:

NATURE OF CALL: Ms. Harbieson reports that a dump located beside Broughton Hospital is being used for open burning. There was burning going on there yesterday. The complainant also reports that a dump has been created behind the School for the Deaf in Morganton.

REPORT REFERRED TO: Mr. James McColman, Chief, Air Quality Section
Mr. Marshall Staton, Health Services, Human Resources

IMMEDIATE ACTION TAKEN:

SIGNED

Burke
SR

September 19, 1975

Mr. A. John Eucus, President
Wamsutter Pile Fabrics
Wamsutter Mill Road
Kearney, N. C. 28655

Dear Mr. Eucus:

Your letter of September 17, 1975, with reference to chemical waste disposal has been received.

After discussing the chemical composition of the material you wish to dispose of with Dr. Jack Dyer, Head, Environmental Sciences Branch, we find that it is not suitable for placing in a sanitary landfill.

If there is a feasible method for removing the water so as to produce a dry product, then we would reconsider if you would provide this office with the chemical composition of the dry product.

Liquid wastes are not suitable for placing in landfills, primarily due to leachate problems with waste that cannot contain their own moisture.

I am sorry we cannot provide you with a ready solution to your problem.

Sincerely,

O. W. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

GWO/cr
cc: Mr. J. N. Fulp, Jr.
Mr. Robert Cantino
Burke County Health Department

Wamsutta® PILE FABRICS

WAMSUTTA MILL ROAD • MORGANTON, N. C. 28655

A. John Beucus
President

September 17, 1975



Mr. Bill Strickland
Solid and Vector Control Branch
Division of Health Services
P. O. Box 2091
Raleigh, North Carolina 27602

Dear Mr. Strickland:

At Mr. Bob Cantine's suggestion I attempted to phone you this morning to give you the chemical composition of the liquid we are requesting permission to dump hopefully at the Burke County Land Fill Area. Unfortunately, I learned that you were out of the office; and therefore, I am taking the liberty of writing you to give you the chemical composition. Our tests indicate that this will not burn; and by the same token, we are most hesitant to dispose of it through the sewage system.

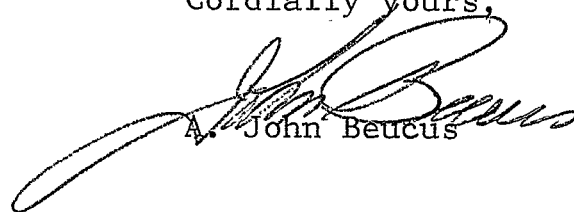
We would appreciate any help you can give us as we expect to dispose of approximately 7 to 8 barrels per month.

Listed below is the chemical composition.

86.8%	Water
7.2%	Butyl Acrylate
2.4%	Acrylonitrile
2.4%	Methyl Methacrylate
1.0%	Hydroxide Ethyl Cellulose
.2%	Ethylene Oxide
100 %	

We look forward to your reply.

Cordially yours,


A. John Beucus

AJB/ert

cc: Mr. Robert Cantine
County Manager, Burke County
P. O. Box 219
Morganton, N. C. 28655

Barker
JHR

May 2, 1975

Mr. Jim Elmore
Safety Director
Southern Devices Incorporated
Drawer 68
Morganton, N. C. 28655

Dear Mr. Elmore:

Your letter of April 16, 1975, requesting a variance under Section XIV of the Division of Health Services "Rules and Regulations Providing Standards for Solid Waste Disposal" on your Company solid waste disposal site has been received.

The type of waste and conditions for operating the site have been discussed with Mr. J. N. Fulp, Sr., District Sanitarian.

This office grants your request for a variance providing the waste continues to be of the same type as observed by Mr. Fulp and the following conditions which were discussed with Mr. Fulp are met.

1. Stay at least 100 feet from the stream.
2. Provide drainage around the site.
3. Control access by fence and gate next to the road.
4. Provide no trespassing signs and private property signs at the entrance.

By copy of this letter, I am asking Mr. Fulp to place your site on his routine surveillance list.

If Mr. Fulp or this office can be of assistance, please let us know.

Yours truly,

Sidney H. Usry, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

ONS/ct

cc: Mr. Elmo Pascal
Mr. J. N. Fulp, Sr.
Mr. O. W. Strickland

SANITARY ENGINEERING DIVISION

Office Memorandum

TO: SO HOLERY

FROM: J. FULP

DATE: 4-25-75

	RECEIVED APR 28 1975 SOLID WASTE CONTROL INSPECTOR	REMARKS
CALL		THIS IS FOR VARIANCE -
HANDLE		BELIEVE SOME TIME AGO. BILL SOME SUGGESTIONS
SEE ME		I MADE TO THE PLANT RR.
COMPILE INFORMATION FOR MY REPLY		NEEDS I THOUGHT PERTINENT.
FOR APPROVAL		1-KEEP AWAY FROM STREAM 100'
PREPARE REPLY FOR SIGNATURE OF		2-LIKE RAMP & COMPACT
FOR YOUR INFORMATION THEN FILES		3-NEED FENCE & GATE AS LAND
PLANT HAS BEEN USING THIS SITE FOR SOME TIME		IS BESIDE & IN SIGHT OF TRUCK HGRY.



SOUTHERN DEVICES INCORPORATED

DRAWER 68 • TELEPHONE 584-1611

MORGANTON, N.C. 28655



April 16, 1975

Mr. S. H. Usry, Chief
Sanitary Engineering Section
Solid Waste Control
Drawer 520
Wilkesboro, North Carolina
28697

Dear Sir:

This correspondence is to apply for a variance on our Company owned landfill per Section XIV of the Rules and Regulations Providing Standards for Solid Waste Disposal.

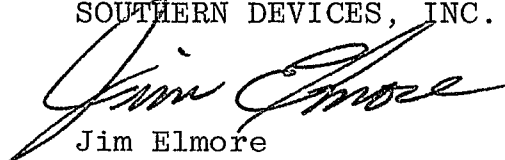
This application is made in response to an inspection of our facility by Mr. J. N. Fulp, Sr., District Sanitarian, and Mr. Paskel, Director of Sanitation of Burke County.

The landfill is located off Industrial Blvd. and is on Company property. The material being dumped consist of ceramic and plastic waste and we contract the covering on a regular basis.

We anticipate no problems complying with Mr. Fulp's recommendations and offer our complete cooperation with your department.

If I can assist or answer any questions, please contact me.

Thank you,
SOUTHERN DEVICES, INC.


Jim Elmore
Safety Director

JE:st

CC: C. Styles
B. Jaynes
D. Eckard
J. Fulp, Sr.

MEMO TO: O.W. STRICKLAND

4-11-75

FROM: J.N. FULP, SR.

SUBJECT: VARIANCE FOR SOUTHERN DEVICES, MORGANTON, N.C.

THIS COMPANY IS TO COVER OLD IND. W. SITE.

THEY HAVE BEEN DUMPING ON THEIR PROPERTY ^{AT A NEW SITE} WHICH LIES
ADJACENT TO A S.R. ^(STATE ROAD) AND THIS SITE WILL REQUIRE A VARIANCE.

THE TYPE OF REFUSE IS CERAMIC & PLASTIC WASTE ^{NO PUTRESCIBLE WASTE} - POSSIBLY NOT
AVERAGE OVER ONE CUBIC YD. A WEEK. THEY WANT TO FILL IN
THE SITE & BRING IT TO ROAD LEVEL.

SUGGESTED TO THEM THEY COULD SEEK A VARIANCE AND
GIVE THEM A COPY OF DEC BULLETIN #411 REF. THEM TO SEC XIV
IN GRANTING A VARIANCE AS I POINTED OUT TO THEM YESTERDAY
APRIL 10, THAT THE FOLLOWING OPERATION & NEEDS WOULD BE
REQUIRED ALSO

- 1- USE RAMP METHOD - AND NOT CONSTRUCT NEARER THAN 100' FROM ^{SMALL} BRANCH.
- 2- PROVIDE DRAINAGE AROUND THE SITE.
- 3- PROVIDE FENCE & GATE NEXT TO ROAD, AND KEEP LOCKED
- 4- PROVIDE NO TRESPASSING SIGNS & ALSO PRIVATE PROPERTY SIGNS.

I FEEL A VARIANCE IS IN ORDER HERE - IF YOU AND SID AGREE.

- Burke
ern

April 11, 1975

Mr. D. R. Moyes, Manager
Essex International Metal & Plastics
Products Division
Asheville Road
Morganton, North Carolina 28655

Re: Appreciation for your Cooperation
on Proper Disposal of your Company's
Solid and Industrial Waste

Dear Mr. Moyes:

I want to take this opportunity to write to you of my appreciation for your promise to see that the garbage and industrial waste from the Essex Plant will be taken to the county landfill as we discussed in our conversation yesterday, April 10, 1975.

As I explained to you we are contacting all industrial plants to seek proper disposal of waste and we hope to make North Carolina cleaner and greener.

Thanking you again for your cooperation in this matter.

Yours very truly,

J. N. Fulp, Sr., District Sanitarian
Drawer 520
Wilkesboro, North Carolina 28697

JNF:bm

cc: Mr. O. W. Strickland
Mr. Elmo Pascal

April 7, 1975

Mr. E. J. Pascal, R. S.
Burke County Health Department
601 E. Concord Street
P. O. Box 1266
Morganton, N. C. 28655

Dear Mr. Pascal:

Mr. Usry and I have discussed the disposal of industrial solid waste in Burke County, including the problems you are having with plastics.

There are only two approved solid waste disposal sites in Burke County. These two sites are operated by the County. All sites other than the two County sites that are receiving solid waste are in violation of the Division of Health Services "Rules and Regulations Providing Standards for Solid Waste Disposal." This includes sites that are operated by industrial plants for their own waste.

This office has worked with many industrial plants across the State in providing their own solid waste disposal sites. Some variances have been granted when types of waste and conditions made it necessary.

By copy of this letter I am asking Mr. Jim Fulp, District Sanitarian, to survey the major industrial plants and private collectors in Burke County to see that they are in compliance with the Rules and Regulations.

After talking with Mr. Fulp by phone he informs me that he will be in Burke County on Thursday, April 10, 1975, for the purpose discussed above.

Sincerely,

O. W. Strickland, Supervisor
Solid Waste Management Unit
Solid Waste & Vector Control Branch
Sanitary Engineering Section

OWS/ct

cc: Mr. J. N. Fulp, Sr.
Dr. G. F. Reeves
Mr. Sidney H. Usry

Burke
J + R



April 28, 1975

Mr. D. R. Moyes, Manager
Essex International
Metal & Plastics Division
Asheville Road
Morganton, North Carolina 28655

Re: Factory Waste

Dear Mr. Moyes:

The last time I contacted you, you assured me that you would have the mill waste processed (by cutting into small strips) and have it taken to the landfill.

Today while I was at the landfill I was told this was not being done and that you were having a Mr. Fisher "haul it off".

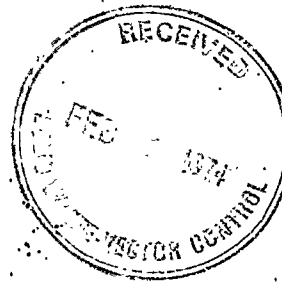
This is to officially notify you that you and your company are responsible for your industrial waste, as all other plants, and if you do not correct this situation immediately, you leave me no alternative but to notify our Raleigh Office for proper legal action.

Yours very truly,

J. N. Fulp, Sr., District Sanitarian
Drawer 520, Wilkesboro, N. C. 28697

JNF:bm

cc: Mr. O. W. Strickland
Essex Metal & Plastics, Product Division, 1601 Wall Street,
Fort Wayne, Indiana 46804



SANITATION ORDINANCE

AN ORDINANCE FOR THE CONTROL, COLLECTION AND DISPOSAL
OF SOLID WASTES IN BURKE COUNTY, NORTH CAROLINA

EXHIBIT 4
SHEET 1 OF 17

PREAMBLE

In the interest of protecting the public health and welfare of residents of Burke County, North Carolina, the Burke County Board of Commissioners hereby adopts, pursuant to the authority granted by Article 13B of Chapter 130 of the General Statutes of North Carolina, rules and regulations for control, collection, and disposal of solid waste.

ARTICLE 1 - ADMINISTRATION AND ENFORCEMENT

1.1 - Administration; Enforcement

The administration and enforcement of this ordinance shall be vested with the County Manager of Burke County or his duly authorized representatives. The Director of the County Health Department, and his representatives, are hereby designated and authorized to assist the County Manager, as directed by him, in the enforcement of this ordinance.

1.2 - Operations; Procedures and Regulations

Procedures and regulations for the administration and implementation of this Ordinance are set forth in the "Operations Manual" annexed hereto, incorporated herein by reference and made a part of this Ordinance. Said "Operations Manual" may be modified or amended from time to time by the County Manager.

ARTICLE 2 - DEFINITIONS

The following terms used in this Ordinance are defined as follows:

2.1 - "Ashes" - means refuse resulting from the burning of wood, coal, coke, or other combustible material which has no live embers.

2.2 - "Building Materials" - means materials such as lumber, bricks, plaster, loam and other substance accumulated as a result of repairs to existing buildings or construction of a new building, and demolition wastes of old buildings or structures.

2.3 - "Bulk Container" - means a metal container of not less than one-half ($\frac{1}{2}$) cubic yard. Said container is to be of tight construction and constructed so that it may be handled and emptied by a special truck.

2.4 - "Cell" - means compacted refuse completely enveloped by a compacted cover material.

2.5 - "Commercial and Institutional Establishment" - means any office; retail store; wholesale store; bottling plant; printing establishment; religious, charitable, or government office; private club; hospital; group of mobile homes; apartment; group of apartments; or similar establishment; (provided, however, that such establishment shall not be construed to refer to the residents of individual mobile homes or individual apartments).

2.6 - "Dead Animal, Large" - means any dead animal larger than common house pets such as cats, and dogs.

2.7 - "Dead Animals, Small" - means cats, dogs and other animals of similar size.

2.8 - "Garbage" - means all putrescible wastes, including animal and vegetable matter animal offal and carcasses, and recognizable industrial by-products, exclusive of sewage and human wastes.

2.9 - "Garbage Receptacles" - means receptacles for garbage constructed of metal or plastic, of substantial construction, water tight, with tight fitting lids, provided with handles sufficient for safe and convenient handling and shall be kept in serviceable condition and covered at all times. Such receptacles shall have a capacity of not less than ten (10) gallons nor more than thirty-two (32) gallons.

2.10 - "Hazardous Solid Wastes" - includes but is not limited to explosives, pathological wastes, pesticides, chemicals highly combustible and other toxic materials which are harmful to public health.

2.11 - "Incineration" - means the process of burning solid, semi-solid or gaseous combustible wastes to an inoffensive gas and a residue containing little or no combustible material.

2.12 - "Industrial Establishments" - means factories, processing plants and other manufacturing enterprises.

2.13 - "Local Governing Agency" - means incorporated cities, towns, counties and specific purpose districts which are empowered to undertake solid waste management programs.

2.14 - "Miscellaneous Refuse" - means all rubbish and refuse (other than garbage, ashes or dead animals) incident to the ordinary conduct of the household.

2.15 - "Open Burning" - means any fire wherein the products of combustion are emitted directly into the atmosphere and are not directed thereto through a stack or chimney, incinerator, or other similar devices.

2.16 - "Open Dump" - means consolidation of solid waste from one or more sources at a disposal site which has unsanitary conditions, little or no cover.

2.17 - "Person" - means any individual, firm, governmental unit, organization, partnership, corporation or company.

2.18 - "Putrescible Waste" - means solid waste capable of being decomposed by microorganisms with sufficient rapidity as to cause nuisances from odors and gases, such as kitchen wastes, offal and carcasses.

2.19 - "Radioactive Solid Waste" - means radioactive material.

2.20 - "Refuse" - means non-putrescible wastes.

2.21 - "Residential Unit - Multiple" - means any duplex, apartment, group of apartments, or group of mobile homes.

2.22 - "Residential Unit - Single" - means any dwelling place occupied by one family.

2.23 - "Rubbish" - means combustible and noncombustible waste materials except garbage; and the term shall include paper, rags, cartons, boxes, wood, excelsior, rubber, leather, tree branches, yard trimmings, tin cans, metals, mineral matter, glass, crockery, dust, the residue from the burning of wood, coal, coke, and other combustible materials or similar materials.

2.24 - "Sanitary Landfill" - means a method of disposing of solid waste on land in a sanitary manner without creating nuisances or hazards to public health or safety by utilizing the principles of engineering to confine the solid waste to the smallest

practical area, to reduce it to the smallest practical volume and to cover it with a layer of compacted earth at the conclusion of each day's operation or at such more frequent intervals as may be necessary.

2.25 - "Solid Waste" - means garbage, refuse, rubbish, trash, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids industrial waste water effluents, dissolved materials in irrigation return flows or other common water pollutants.

2.26 - "Solid Waste Collector" - means any person who collects or transports solid waste, by authority granted by Burke County, North Carolina.

2.27 - "Solid Waste Disposal" - means collection, storage, treatment, utilization, processing, or final disposal of solid waste.

2.28 - "Solid Waste Disposal Facility" - means land, personnel, equipment, or other resources used in the disposal of solid wastes.

2.29 - "Solid Waste Disposal Site" - means any place at which solid wastes are disposed of by incineration, sanitary landfill or any other methods.

2.30 - "Spoiled Food" - Means any food which has been removed from sale by the United States Department of Agriculture, North Carolina Department of Agriculture, Food and Drug Administration, or any other regulatory agency having jurisdiction in judging food unfit for consumption.

2.31 - "Vector" - means insect or other animal which transmits infectious diseases from one person to another.

2.23 - "Waste" - means litter, rubbish, refuse and miscellaneous unusable or unwanted materials.

2.24 - "Water Supply Watershed" - means an area from which water drains to a point or impoundment, which water is then used as a source for a public water supply.

ARTICLE 3 - GENERAL

3.1 - Solid Waste on Property; Prohibitions

(a) It shall be unlawful for any person to maintain, allow, cause, or permit the accumulation of excessive, un-sightly, improperly contained (as determined by the provisions of this Ordinance relating to containers) solid waste upon premises owned, occupied, or controlled by him; or in any manner to place or allow to remain upon such property solid waste in such quantity and manner as to constitute a nuisance; to cause, or create the likelihood of injury to the health or welfare of other persons; or cause, or create the likelihood of, injury to adjoining property.

(b) Notwithstanding any provision of Subsection (a) of this Section 3.1, no person shall be deemed to have violated the provisions of this Section who, within seven (7) days after notice to remove in writing to him from the County Manager or his authorized representative, shall have removed such solid waste from such property as has been accumulated, placed, or allowed to remain on such property in the manner prohibited.

(c) If after seven (7) days from the date of the notice referred to in Subsection (b) of this Section 3.1 the solid waste accumulated, placed, or allowed to remain on property in the manner prohibited such solid waste shall not have been removed, the County Manager or his authorized representative shall have the right and authority, without further notice, to enter upon said premises and to remove such solid waste; provided, however, if objection or protest is duly made to such removal, the Board of County Commissioners shall hear and determine the same and shall thereupon issue such order or orders as it deems appropriate. If such removal is made by the County Manager, or his authorized representatives, the expenses of the same shall be charged by the County to the person determined to be in violation of this Section, and shall constitute a lien upon such property.

(d) The owner, operator, or other person responsible for the operation of drive-in restaurants and other food establishments shall maintain, or cause to be maintained, at all times on the premises sufficient receptacles or other devices for the disposal of solid waste as will permit adequate depositories for use by the customers and patrons of such restaurants and other food establishments.

3.2 - Littering; Prohibitions

It shall be unlawful for any person to litter the ground by throwing, dumping, or dropping thereon any solid waste.

3.3 - Violation made Misdemeanor; Punishment

A person who violates any provision of this Article 3 shall be guilty of a misdemeanor and subject to a fine of \$50 and/or 30 days in jail.

ARTICLE 4 - PRE-COLLECTION OF SOLID WASTE

4.1 - General

Such solid waste as shall be accumulated and/or stored prior to being disposed of shall be handled in the manner provided in this Section.

4.2 - Containers

Containers or receptacles shall be used for the collection and/or storage of solid wastes, and shall be of construction that will accomodate and properly control wastes prior to disposal. Such containers and receptacles shall be maintained in serviceable condition at all times and located so that no unsightly condition, health hazards, or nuisances are created, and pilferage by persons or animals is minimized. Under no conditions shall liquid or putrescible wastes be stores in open containers or receptacles.

4.3 - Residential

(a) Solid waste from single residential units shall be placed in garbage receptacles.

(b) Solid waste from multiple residential units shall be placed in garbage receptacles or bulk containers.

4.4 - Commercial, Institutional, and Industrial

Solid waste from commercial, institutional, and industrial establishments shall be placed in garbage receptacles, bulk containers, or other containers. Liquid or putrescible wastes shall be placed in containers which are constructed of durable metal or plastic, which are water tight, and which have tight fitting lids, with handles sufficient for convenient handling.

4.5 - County Bulk Containers

County bulk containers may be provided by the County at designated places for the exclusive use of residents of Burke County, and are to be used as specified in this Ordinance for disposal of household solid waste only. Appliances, dead animals, hazardous waste, demolished structures, leaves, tree or yard trimmings shall not be

placed in County Bulk Containers. County Bulk Containers shall not be used by commercial, institutional, or industrial establishments.

4.6 - Specific Types of Solid Waste; Requirements

(a) Boxes, Leaves, Tree Trimmings, Shrubbery Trimmings or Other Yard Trimmings

All boxes, leaves, tree trimmings, shrubbery trimmings, other yard trimmings, or similar refuse shall be prepared for conveyance to the Sanitary Landfill site as follows:

(1) Leaves: Leaves shall be placed in plastic bags, heavy paper bags, or other enclosed containers or vehicles in such manner as to prevent blowing or otherwise escaping from such container or vehicle.

(2) Tree Trimmings and Shrubbery Trimmings:

(a) Tree trimmings, limbs, shrubbery trimmings, or other similar materials shall be cut in four (4) to five (5) foot lengths, with protruding branches trimmed. No such materials shall be placed in County Bulk Containers.

(b) Tree and shrubbery limbs and trimmings shall be bundled or shall be placed in containers or heavy refuse bags.

(3) Cardboard Boxes, Wooden Crates, Etc.: Cardboard boxes, wooden crates, etc. placed in County Bulk Containers or handled by collection agency shall be flattened and tied in bundles of such size as can be handled by one (1) man, or a maximum of fifty (50) pounds and placed in heavy bags or refuse receptacles. Such weight and size requirements shall not apply to solid wastes collected and delivered to the landfill by commercial, institutional, and industrial establishment.

(4) Household Furniture and Appliances: Tables, stoves, washers, dryers, and similar items shall be disposed of at approved Sanitary Landfill sites only at approved times and places, and shall be prepared as specified under Collection Practices.

(b) Disposal into Streams, Drainage Ditches, Etc.

No person shall throw, sweep or dispose from any household, yard, or business, any solid waste into drainage ditches, roadways, roadway medians, manholes or other places detrimental to the general environment, but shall dispose of such waste by means as specified herein.

4.7 - Violation Made Misdemeanor; Punishment

A person who violates any provision of this Article 4 shall be guilty of a misdemeanor, and shall be subject to a fine of \$50 and/or 30 days in jail. A separate and distinct violation shall be deemed to have occurred upon each and every day during which such violation continues.

ARTICLE 5 - COLLECTION AND TRANSPORTATION OF SOLID WASTE

5.1 - General

Vehicles used for the collection and transportation of solid wastes shall be loaded and moved in such a manner that the contents will not fall, leak, or spill onto roadways, thoroughfares, or adjoining properties, and shall be covered when necessary to prevent blowing of materials. If spillage should occur, the materials shall be picked up immediately by the person or collector and returned to the vehicle or container.

Every person shall dispose of all solid wastes which accumulate on his premises in a clean and sanitary manner. Such disposal shall be by duly authorized collection agencies, or by private conveyance to the landfill site or private placement in County Bulk Containers.

No person who resides within the corporate limits of a municipality, nor guest of such person shall dispose of solid waste, or shall otherwise use, County Bulk Containers however, nothing herein shall be construed to prohibit a city resident or his guest from using County containers to dispose of waste accumulating from activities outside the limits of a municipality.

Commercial, industrial, and institutional establishments shall be totally responsible for the proper collection and transportation of any and all of their solid wastes.

5.2 - Residential

All residential solid wastes shall be conveyed to approved Sanitary Landfill sites by approved and licensed private agencies or by individuals. Individuals living in rural areas may deposit household solid wastes only in County Bulk Containers. Individuals shall not use County Bulk Containers for disposal of tree trimmings, shrubbery trimmings, leaves or other yard trimmings, auto parts, lumber or household furniture and appliances. Such solid wastes shall be delivered to approved Sanitary Landfill sites.

5.3 - Commercial, Industrial, and Institutional

Commercial, industrial, and institutional establishments shall provide for disposal of solid waste by authorized collection agencies, or shall be individually responsible for disposal of waste in accordance with the provisions of this Ordinance. No commercial, industrial, or institutional wastes shall be placed in County Bulk Containers. Commercial, industrial, and institutional establishments shall be

subjected to any fees as may be approved by the Burke County Board of Commissioners, or as may be provided herein.

5.4 - Hazardous Solid Waste and Liquid Waste

No Hazardous solid waste or liquid waste shall be placed in any receptacle used for collection of waste by the County. Hazardous or highly combustible waste shall not be disposed of in the Sanitary Landfill sites.

5.5 - Small Dead Animals

Small dead animals may be disposed of at a Sanitary Landfill without cost between 8:00 o'clock A.M. and 4:30 P.M., Mondays through Fridays.

5.6 - Lot Clearing or Construction

No materials such as trees, shrubbery or underbrush resulting from land being cleared will be picked up by County forces. Building materials shall be collected, removed, and disposed of by the contractor or builder, or in the event of his failure to do so, by the owner of the property. No such materials shall be disposed in County Bulk Containers.

5.7 - Refusal to Allow Deposit

The operator of a Sanitary Landfill site shall not allow the deposit therein of solid waste from a vehicle which has been loaded and/or moved in such a manner as to fail to comply with the provisions of Section 5.1 of this Article.

5.8 - Violation Made Misdemeanor; Punishment

A person who violates any provision of this Article 4 shall be guilty of a misdemeanor, and shall be subject to a fine of \$50 and/or 30 days in jail. A separate and distinct violation shall be deemed to have occurred upon each and every day during which such violation continues.

ARTICLE 6 - MISCELLANEOUS PROVISIONS

6.1 Abandoned Iceboxes

It shall be unlawful for any person to put, cause to be put, leave, or cause to be left in a place accessible to children any abandoned, unattended, or discarded, icebox, refrigerator, or any other container or device of any kind or description which has an air-tight snap lock door or other similar device thereon without having first removed the said snap lock door or other similar device from such icebox, refrigerator, or other container; provided, however, that this section shall not apply to such icebox, refrigerator, or other container which is crated, strapped, or locked in such fashion, or to such extent, that it is impossible for a child to obtain access to any airtight compartment thereof.

A person who violates any provision of this section shall be guilty of a misdemeanor, and shall be subject to a fine of \$50 and/or 30 days in jail. A separate and distinct violation shall be deemed to have occurred upon each and every day during which such violation continues.

6.2 - Junk; Removal

(a) It shall be unlawful for any person to put, cause to be put, leave or cause to be left, on public or private property, a stove or other appliance, machinery, equipment, building materials, or other materials which is or are in a wholly or partially rusted, wrecked, junked, deteriorated, dismantled, or inoperative condition, and which is or are not completely enclosed within a building; provided, however, that this Section shall not apply to an authorized appliance or junk dealer who has placed or left such materials on his property in the course of such business.

(b) Notwithstanding any provision of Subsection (a) of this Section 6.2, no person shall be deemed to have violated the provisions of this Section who, within seven (7) days after notice to remove in writing to him from the County Manager or his authorized representative, shall have removed such material from such property.

(c) If after seven (7) days from the date of the notice referred to in Subsection (b) of this Section 6.2 the materials put or left on such property in the manner prohibited shall not have been removed, the County Manager, or his authorized representative, shall have the right and authority, without further notice, to enter upon said property and remove such materials; provided, however, if objection or protest is duly made to such removal, the Burke County Commissioners shall hear and

determine the same and shall thereupon issue such order or orders as it deems appropriate. If such removal is made by the County, the expenses of the same shall be charged to the person determined to be in violation of this Section, and shall constitute a lien upon such property.

(d) A person who violates a provision of this Section shall be guilty of a misdemeanor, and shall be subject to a fine of \$50 and/or 30 days in jail. A separate and distinct violation shall be deemed to have occurred upon each and every day during which such violation continues.

6.3 - Dirt and Debris on Private Roads During Construction

If dirt, mud, construction materials, or other debris shall be deposited upon a private road as a result or consequence of a construction project in progress, the contractor in charge of the project shall remove said debris; provided, however, that this Section shall have no application to such deposit upon a private road, or upon any portion of a private road, as shall be owned by the owner of the property upon which such construction project is in progress. A person who violates any provision of this Section shall be guilty of a misdemeanor, and shall be subject to a fine of \$50 and/or 30 days in jail. A separate and distinct violation shall be deemed to have occurred upon each and every day during which such violation continues.

6.4 - Tires

All tires delivered to the landfill site by commercial, institutional, or industrial establishments shall either (1) be slashed (cut in half on circumference), or (2) shredded or quartered (cut in to four (4) pieces of the approximate same size); and shall be accepted at the landfill at the time of day specified therefor in the Operating Procedures.

The requirement as to slashing or shredding shall not apply to tires deposited at the landfill by residents; provided, however, that residents are limited to the deposit of four (4) tires per trip or visit to the landfill.

6.5 - Hand Unloaded Large Trailers

Large trucks or trailers (twenty-eight (28) feet or longer) which are to be unloaded by hand at the landfill, shall not be allowed entry to the site except at such times as may be specified in the Operating Procedures.

6.6 - Metal Fifty-Five (55) Gallon Drums

Metal fifty-five (55) gallon drums, such as oil and chemical containers, shall not be accepted at the landfill site, unless such drums have both ends (top and bottom) completely removed.

6.7 - Other Limitations

(a) From time-to-time certain solid waste may arrive at the landfill site, which in the opinion and judgment of the operators of the site would be hazardous or detrimental to personnel or operations. Such operators may delay the unloading of such wastes until the Director of Health, or his representative, has the opportunity to review the situation and decide upon the disposition of the waste. With regard to decision upon such disposition, appeal may be had to the County Manager, whose decision shall be final and subject to no appeal.

(b) In order to properly operate the landfill site, the duly authorized landfill operators of necessity must exercise discretion as to where certain types of solid waste are unloaded. Persons delivering wastes to the landfill site shall be required to discharge the same at locations as directed by the operator. Any person who does not discharge waste where directed shall be guilty of a misdemeanor, and shall be fined, for the first offense, Twenty-five Dollars (\$25.00), for the second offense, Fifty Dollars (\$50.00), and for the third offense One Hundred Dollars (\$100.00), and may, after said third offense, be suspended or prohibited from using the landfill site. This provision shall under no circumstance empower landfill site operators to require that drivers make or attempt maneuvers that would abuse or injure equipment or that would jeopardize the safety of the driver or equipment.

(c) All approved landfill Operating Procedures are incorporated herein as a part of this Ordinance, and shall be enforceable as herein provided.

(d) No solid waste shall be accepted at landfill sites from outside Burke County unless permission is granted by the Board of Commissioners.

6.8 - Unlawful Entry to the Landfill Site

It shall be unlawful for any person to enter the landfill site except during times of normal operations, except persons specifically authorized. Any person

violating this provision shall be prosecuted as for trespass.

6.9 - Tampering with Equipment

It shall be unlawful for any unauthorized person to operate, tamper with, enter, pilfer, or damage any structures, equipment or machinery at the landfill site. Any person who violates the provisions of this Section shall be guilty of a misdemeanor and shall be subject to a fine of \$50 and/or 30 days in jail.

6.10 - Use of County Bulk Containers

County Bulk Containers are placed in rural areas of the County for the exclusive use of residents, guests of residents, or bona fide visitors to Burke County.

6.11 - Incinerators

No person shall operate an incinerator in Burke County except under the following conditions:

(a) A letter of consent is obtained from the Air Pollution Authorities. Such letter shall state that the Air Pollution Authorities have seen or are familiar with the site, construction plans and specifications, etc., and have determined that all conditions meet State, Federal and Local requirements.

(b) A formal request to operate such incinerator is submitted to the Director of Health setting forth a proposed location, materials to be burned and amounts, times of operation, and the owner's name and address, and such other information as may be required by the Director of Health. Such request shall be transmitted for final decision by the Director of Health to the Board of Commissioners, accompanied by the Director's recommendation.

6.12 - Collection for Fees; Prohibition

No person, in return for a fee, shall engage in the business of collection, transportation, or disposition of solid wastes without having been awarded a franchise therefor by the Burke County Board of Commissioners pursuant to the Franchise Ordinance of Burke County.

ARTICLE 100 - FEES AND CHARGES

100.1 - General

In order to insure the proper and continued operation of solid waste disposal and other sanitation facilities for the residents of Burke County on a fair and equitable basis, the Board of Commissioners shall assess such charges and fees as may be deemed by it to be necessary. Such fees and charges shall be collected and accounted for as specified and directed by the County Manager. Any fees imposed by, or under authority of, this Ordinance shall be collectable only after the opening and placing into operation of the "East Burke Landfill".

100.2 - Residents

Residents, guest of residents, or bona fide visitors to Burke County who handle and deliver their solid waste to the landfill site in accordance with the provisions of this Ordinance shall not be charged a fee. There shall be no charge or fee for deposit of residential solid wastes collected and delivered to landfill sites by municipal or County vehicle or conveyance.

100.3 - Commercial, Industrial, and Institution

The following fees shall be charged for the disposal of Commercial, Industrial, and Institutional wastes:

- (a) For uncompacted wastes: 10¢ per cubic yard
- (b) Compacted wastes: 20¢ per cubic yard

The volume of uncompacted wastes shall be based and determined upon actual measurement of the size of the container or vehicle, and the portion of such vehicle actually filled at the time of arrival at the landfill site, such determination to be made by the attendant on duty. Any such commercial, industrial, or institutional waste delivered to landfill sites by municipal vehicles shall be subject to the above fees.

For compacted wastes, volume shall be based and determined by use of the vehicle manufacturer's specified volume, or by measurement by the attendant if necessary.

100.4 - Separate Delivery Required

Separate delivery of specified types of solid waste may be required as appropriate for the purpose of assessing proper charges.

Burke
dk

October 18, 1973

MEMORANDUM

TO: Dr. Ronald Levine, Chief
Community Health Section

FROM: Sidney H. Usry, Head
Solid Waste & Vector Control Branch
Sanitary Engineering Section

SUBJECT: Letter from Lewis L. Bock, M.D.

In reply to your request for assistance in answering the note from Dr. Bock, it has been the practice in many counties for the director of the solid waste management program to be placed in the local health department along with additional personnel that might be employed on the project. The responsibility for solid waste management on a county level has been placed primarily in the local health department since it was adopted by the North Carolina State Board of Health (Division of Health Services).

This responsibility for solid waste management should necessarily require the employment of additional personnel to be included on the present staff of any local health department. The personnel employed on solid waste management are or should be specially trained in this field and the proper operation of a county-wide program will be a full time job for at least one, if not more, staff members.

It is understandable that since the Appalachia Regional Commission has withdrawn all financial assistance and that Burke County has assumed the responsibility for solid waste management, it would be my opinion that the county manager would feel that this responsibility should be in the local health department since solid waste disposal has always been considered a health function.

SHU:bm

Sid. Usry:

Please help me to
reply to Dr. Bock.

Thanks.

Don

FROM THE OFFICE OF—

LEWIS L. BOCK, M. D.

Don:

I believe that the reorganization has resulted in just such ordinariness on the local level as they relate to the authority & chain of commands. It would appear that political power is centered on one man, and that the Health Department over—

this becomes an agency that responds to
political caprice and control.

Thought you'd like to see this.
I'm trying to be optimistic, but for the
long run I have my doubts.

Fraternally

Les Bock

Adopted 8 Oct 73

PREAMBLE

In the interest of protecting the public health and welfare of residents of Burke County, North Carolina, the Burke County Board of Commissioners hereby adopts, pursuant to the authority granted by Article 13B of Chapter 130 of the General Statutes of North Carolina, rules and regulations for control, collection, and disposal of solid waste.

ARTICLE 1 - ADMINISTRATION AND ENFORCEMENT

1.1 - Administration; Enforcement

The administration and enforcement of this ordinance shall be vested with the County Manager of Burke County or his duly authorized representatives. The Director of the County Health Department, and his representatives, are hereby designated and authorized to assist the County Manager, as directed by him, in the enforcement of this ordinance.

ARTICLE 2 - DEFINITIONS

The following terms used in this Ordinance are defined as follows:

2.1 - "Ashes" - means refuse resulting from the burning of wood, coal, coke, or other combustible material which has no live embers.

2.2 - "Building Materials" - means materials such as lumber, bricks, plaster, loam and other substance accumulated as a result of repairs to existing buildings or construction of a new building, and demolition wastes of old buildings or structures.

Please supply information with asterisk only. If you have questions, contact Gordon Layton .

N. C. SOLID & HAZ WASTE BRANCH
SOLID WASTE FACILITY MASTER

10/73

* PERMIT NO: 12 01 PERMIT DATE 10/73 COUNTY CODE 12
* FACILITY TYPE: S * NAME: Burke Co. Landfill PHONE: - - -
* LOCATION. Street/State Rd: Kings Hwy / 62nd * Town/comnty: Morganton
Latitude: - - - Longitude: - - -

Type(P, I, C, S, F) * *
Name: * Burke Co. * City of Morganton
Street * PO Box 219 * PO Drawer 430
City, ST, Zip * Morganton NC 28655 * Morganton NC 28655
* OPERATOR * CONTACT PERSON (at landfill
Name: * Burke Co. * Dale Meders only!)
Street * PO Box 219 * PO Box 219
City, ST, Zip * Morganton NC 28655 * Morganton NC 28655
Phone * - - - * 704-433-4018

CHARACTERISTICS. Operation Category: -; Type: -; Subtype: - Size: -

Monitoring Well (Y/N): 0; Waste Type: SW; Inspection Freq: 4

Codes

FACILITY TYPE	PERMIT HOLDER	WASTE TYPE
S - Sanitary Landfill	P - Private	SW- Municipal--Non-Hazardous
D - Demolition Landfill	I - Industry	Solid Waste
TP- Treatment and Processing	C - County/City	F - Flyash
I - Incinerator	S - State	S - Sludge
T - Transfer	F - Federal	O - Other

NOTES: (1) Contact person is person at landfill and landfill number.
(2) If operator and property owner are same as permit holder, indicate with "Same."

100
Solid Waste Agreement between the Regional Public Health Agency and the Counties of Alexander, Burke, Caldwell, and McDowell: Project No. 04-H-000005-02-04ATS

July 16, 1973

Solid Waste Management Branch, EPA, Atlanta, Ga.

Mr. Jake Smith
Appalachian Health Program, Region IV
Community Health Service, HSMHA, PHS, DHEW
50 Seventh Street, N. E.
Atlanta, Ga. 30323

SUMMARY

No. 1., A., should be changed to read:

"Maintain a satisfactory operational Solid Waste Program in each county in accordance and compliance with Federal and State guidelines and regulations for the operation of said Solid Waste Programs and, also, to comply with all rules and regulations governing the use of the grants to RPHA. Said Solid Waste Programs shall be open for observation by grantor and grantor's designee during normal working hours throughout said five (5) year period."

A question arises concerning North Carolina State Solid Waste Program comments on the agreement. Since the State agency has primary responsibility for solid waste management in North Carolina they should have the opportunity to comment upon the agreement.

ACTION

Change 1., A., as discussed in SUMMARY to assure right of access during the five (5) year period. I will forward copy of this memorandum and agreement to Mr. Sidney Usry, North Carolina Solid Waste Program, for his comments.

BACKGROUND

Request for review, Solid Waste Program Agreement, Project Number - 04-H-000005-02-0, North Carolina.

Elmer G. Cleveland
Chief
Solid Waste Management Branch

cc: Mr. Sidney H. Usry, w/incoming.

ECC:ebc

Regional Public Health Agency, Incorporated

201 South Green Street

Morganton, North Carolina 28655

June 13, 1973

COMMUNITY HEALTH SERVICE

RECEIVED
JUN 19 1973

HSMHA - PHS - REGION IV

Herbert Hudgins, M. D.
Program Director, Community Health Service
Health Services and Mental Health Administration
Region IV
50 Seventh Street, N. E.
Atlanta, Georgia 30323

Re: Solid Waste Agreement between the Regional
Public Health Agency and the Counties of
Alexander, Burke, Caldwell, and McDowell;
Project Number - 04-H-000005-02-0.

COMMUNITY HEALTH SERVICE

RECEIVED
JUN 29 1973

HSMHA - PHS - REGION IV

Attention: Mr. Jake Smith

Dear Dr. Hudgins:

A copy of the proposed solid waste agreement between the subject agency and counties is submitted for your review..

Loss of the project director, problems with funding, necessity for reducing costs of the solid waste program and different problems inherent in each county have caused the decision to operate independent county programs.

The subject agreement was drawn in order to assure continuation of the program. Your concurrence with the agreement is solicited.

Sincerely,

for Richard H. Graham, D.D.S.

Richard H. Graham, D.D.S.
Chairman, Regional Public Health
Agency

RTS:RHG/krc

Enclosure

cc: Mr. Elmer Johnson
Dr. Glenn P. Deal
Regional Health Council

A G R E E M E N T
FOR
SOLID WASTE PROGRAM

THIS AGREEMENT, made and entered into by and between the REGIONAL PUBLIC HEALTH AGENCY, INC., a non-profit corporation organized and existing under the laws of the State of North Carolina, hereinafter called "RPHA" and BURKE COUNTY, CALDWELL COUNTY, ALEXANDER COUNTY and McDOWELL COUNTY.

W I T N E S S E T H:

THAT WHEREAS the parties to this agreement have implemented a Solid Waste Program in each of said counties, partially funded by grants to RPHA; and

WHEREAS, the parties desire to continue to foster and promote the Solid Waste Programs now in existence and to continue and improve programs now in existence; and

WHEREAS, the parties feel that this contract should establish the relative rights and responsibilities of the parties;

NOW, THEREFORE, to accomplish the purposes as aforesaid, the parties do hereby agree to the following terms and conditions:

1. TERM OF AGREEMENT. This agreement shall begin as of July 1, 1973 and shall continue for a maximum of five (5) years or until such time as the useful life of equipment continues, which equipment was obtained by grants to RPHA.

Alexander, Burke, Caldwell and McDowell Counties do hereby agree to:

A. Maintain a satisfactory Solid Waste Program in each county in accordance with Federal and State guidelines for the operation of said Solid Waste Programs and, also, to comply with all rules and regulations governing the use of the grants to RPHA.

B. Deploy sufficient personnel for the operation of Solid Waste Programs.

C. Maintain books and records that will accurately reflect the fair market value of the equipment being used by such county, which equipment was either purchased by grant to RPHA or equipment obtained in any manner with proceeds from grants to RPHA, so that a determination of the Federal/RPHA equity in each piece of equipment may be made.

D. Use equipment furnished by RPHA funds exclusively for Solid Waste Program.

In the event any of the counties fail to do any of the foregoing, then such county shall pay RPHA the equity of Federal/RPHA in any equipment placed with such county.

2. RPHA shall:

A. Provide equipment for each county as set forth in Schedule as follows:

SCHEDULE A - Alexander County;

SCHEDULE B - Burke County;

SCHEDULE C - Caldwell County;

SCHEDULE M - McDowell County.

B. Monitor and evaluate programs to see that terms of this agreement are complied with by each county and to determine if there has been a breach of this agreement. No determination of a breach of this agreement shall be made unless the North Carolina Department Of Health has first made a determination of such breach.

C. Shall cooperate with each county in order to accomplish the purposes of the Solid Waste Environmental Programs.

IN WITNESS WHEREOF, the parties have executed this Agreement on this the _____ day of _____, 1973.

REGIONAL PUBLIC HEALTH AGENCY, INC.

(SEAL)

BY: _____

ATTEST:

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA
201 SOUTH GREEN STREET
MORGANTON, NORTH CAROLINA 28655
704-433-1636

Burke
JUN 5 1973
Stump

Shirley
Rebecca
File

June 1, 1973

MEMORANDUM

TO : County Managers (Alexander, Burke, Caldwell and McDowell)
Regional Public Health Agency
Regional Solid Waste Commission
Chairmen, County Commissioners (Alexander, Burke, Caldwell, McDowell)

FROM : Roland T. Stump *S*
Executive Director

SUBJECT: Old 202 Solid Waste Program

The County Managers of Alexander, Burke, Caldwell and McDowell met in the Regional Health Council offices with Council staff, 0900, 1 June, 1973.

Attendees were: Mr. Norman Schronce, Mr. Richard Perkins, Mr. Jack Harmon, Mr. Robert Cantine, Mr. Ernest Roberts, Mr. J. M. Lackey, Mr. Ralph Vess, Ms. Fannie Bertalot, and Mr. Roland Stump.

My memoranda of 4 May and 17 May, 1973 are applicable except as corrected herein. The main change was on the TD9 International Dozer.

The first item of business covered was applicable to the equipment not already allocated to counties. It was determined initially that the minimum bid for any piece of equipment from any county would be a minimum of 80% of the ascertained average retail value of that piece of equipment. A copy of the letter from Mr. W. Aubrey Stader of the E. F. Craven Company is attached to show the current value of the major pieces of equipment. Estimates of other equipment values were made during the meeting and agreed upon by the attendees.

- Item 1: The one ton 1965 F300 Ford Dump Truck including bed is to be sold to Caldwell County subject to their looking at it at a price of \$800.
- Item 2: The 1971 Ford 1/2 ton pickup truck was sold to Alexander County for \$1,515 subject to Alexander County Commissioners concurrence.
- Item 3: The Lincoln welder was sold to Burke County for \$720.
- Item 4: The tools and tool box estimated 80% value, \$2,160 were not bid upon pending inventory of that equipment. Alexander and Caldwell Counties desire to bid on the equipment. 9:00 a.m. July 6 is the date for bids on that equipment by those two counties. At that time

the equipment will be laid out and the counties will be allowed to bid on the equipment as inventoried. The Acetelene welder was evaluated at approximately \$100 current value is to be added to the tools and tool box for a total 80% value of \$2,240. Again, 9:00 a.m., 6 July is the date for reviewing the equipment and bidding on same at Regional Health Council offices.

- Item 5: Radio Base Station. Burke and Caldwell Counties both desire to bid on this base station. Since we do not have a single item value for that particular item of equipment, that will have to be ascertained. When the bill is received for that piece of equipment from the vendor, Burke and Caldwell County Managers will be informed so that they may bid on that equipment.
- Item 6: The four mobile radio units were allocated as follows: the two units in the packer trucks will go to McDowell and Alexander respectively as will the packer trucks. The mobile unit in Mr. Ralph Vess's truck will go to Burke County. The mobile unit in the 1971 pickup truck sold to Alexander County will be removed from the 1971 pickup and delivered to Caldwell County. It will be up to the Caldwell and Alexander County people to negotiate any different handling. Assuming Caldwell concurrence, Alexander may wish to retain that unit and negotiate with Caldwell to purchase a unit for Caldwell County.
- Item 7: Steam Jenny. 80% evaluation of the steam jenny was assumed to be \$560. Burke County purchased the steam jenny for \$610.
- Item 8: Battery Charger (612R24) assumed 80% value \$192. Caldwell County purchased that battery charger for \$246.
- Item 9: Bench Grinder was assumed to have a \$75 minimum 80% valuation. Alexander County purchased the Bench Grinder for \$81.
- Item 10: Sprayer was assumed to have a \$76, 80% evaluation and was purchased by Caldwell for \$76.
- Item 11: Fuel tanks are available in each county and are to be left in each county as delivered by oil companys or by the Regional Public Health Agency.
- Item 12: Container hauler trailer was purchased by Caldwell County for \$320 which was the minimum 80% evaluation established.
- Item 13: The D4 Catapiller Dozer was assumed to have a \$14,400 minimum 80% evaluation. That item of equipment was purchased by Caldwell County for \$18,001.
- Item 14: TD9 International Dozer was assumed to have a \$500 evaluation and was sold to Caldwell at that price. As explanation, the dozer has recently incurred major damage and will require several thousand dollars repair in order to make it usable.
- Item 15: The agreement developed by Health Council staff and the Council attorney was distributed and a copy is attached hereto for your review and concurrence.

Item 16: Dollars allocated in accordance with the requested supplemental grant to purchase containers will be utilized to purchase containers as indicated by each individual county. This will be done on a percentage basis, Alexander County 11.64%, Burke County 36.11%, Caldwell County 33.92% and McDowell County 18.33%. Some counties desire different sizes than are currently available and should be allowed to obtain same as they so need.

Major items of equipment identification are shown on an attached separate list.

RTS/cis

Enclosures

McDowell County

- 1 Allis Chambers - 7 GB-3D-14406
- 1 Ford Packer Truck Q80CVN31569

Caldwell County

- 1 Hancock Pan # 3301060
- 1 TD9B-G11946 International Dozer
- 1 Michigan 75LF409B336

Burke County

- 1 Michigan 75LF409B328
- 1 Hancock 3301059
- 1 Caterpillar Dozer D48362004.

Alexander County

- 1 Allis-Chambers 7 GB-3D-14268
- 1 Ford Packer Truck Q80CVN31570

Regional

- 1 1971 Ford FL100 Pickup - # F10GNM00871
- 1 1965 Ford Dump Truck # F35DN684658
- 1 Electric Welder - Lincoln 200 # A557496

E - F - CRAVEN COMPANY
EVERYTHING OR ITIES AND CONTRACTORS

"THE ROAD MACHINERY MEN"

FOUNDED 1900 BY E. F. CRAVEN

GREENSBORO, N.C.

May 29, 1973

Town of Valdese
Box 339
Valdese, North Carolina 28690

Attention: Mr. Dewey Whisnant

Subject: Allis Chalmers Model HD-7G Series B Loaders and
Hancock 292 Scrapers

Dear Mr. Whisnant:

It is sometimes difficult to determine the exact value of any machine, and we feel the best way is to give you the figures suggested by the "Equipment Green Guide". This Green Guide is a form of equipment appraisal, like the Blue Book is in appraising automobiles.

The Green Guide gives the resale price of the HD-7G's at \$23,500.00 ^{McDewey //} and a wholesale value of \$14,925.00, depending on their general condition. The Green Guide gives the resale price of the Hancock 292 scrapers, Serial Numbers 330-1059 and 330-1060, at \$26,400.00 and a wholesale value of \$17,725.00, depending on their condition.

We feel the HD-7GB loader, Serial No. 34U-29396, will be more valuable because of the new undercarriage just installed on the machine. ^{ALEXANDER} The Marion, North Carolina machine, Serial No. 34U-29395, does not have new tracks.

I hope this information will be helpful to you and the county.

Yours very truly,

E. F. CRAVEN COMPANY

Aubrey Strader
W. Aubrey Strader

44 CAT. #18000 TOP DOLLAR AS IS.
Compactors #15000 each TOP DOLLAR
(65 to 70 % off original price)
PACKER TRUCKS 1/2 original value or
\$16000 each
5-31-73 S.

WAS:rl



STATE DISTRIBUTORS: CONSTRUCTION, INDUSTRIAL, LOGGING AND MINING MACHINERY
EQUIPMENT, SUPPLIES AND PARTS CARRIED IN STOCK



A G R E E M E N T
FOR
SOLID WASTE PROGRAM

THIS AGREEMENT, made and entered into by and between the REGIONAL PUBLIC HEALTH AGENCY, INC., a non-profit corporation organized and existing under the laws of the State of North Carolina, hereinafter called "RPHA" and BURKE COUNTY, CALDWELL COUNTY, ALEXANDER COUNTY and MCDOWELL COUNTY.

W I T N E S S E T H:

Y
P
O
C
THAT WHEREAS the parties to this agreement have implemented a Solid Waste Program in each of said counties, partially funded by grants to RPHA; and

WHEREAS, the parties desire to continue to foster and promote the Solid Waste Programs now in existence and to continue and improve programs now in existence; and

WHEREAS, the parties feel that this contract should establish the relative rights and responsibilities of the parties;

NOW, THEREFORE, to accomplish the purposes as aforesaid, the parties do hereby agree to the following terms and conditions:

1. TERM OF AGREEMENT. This agreement shall begin as of July 1, 1973 and shall continue for a maximum of five (5) years or until such time as the useful life of equipment continues, which equipment was obtained by grants to RPHA.

Alexander, Burke, Caldwell and McDowell Counties do hereby agree to:

A. Maintain a satisfactory Solid Waste Program in each county in accordance with Federal and State guidelines for the operation of said Solid Waste Programs and, also, to comply with all rules and regulations governing the use of the grants to RPHA.

BYRD, BYRD,
ERVIN &
BLANTON

MORGANTON, N. C. 28655
704-437-4220

B. Employ sufficient personnel for the operation of Solid Waste Programs.

C. Maintain books and records that will accurately reflect the fair market value of the equipment being used by such county, which equipment was either purchased by grant to RPHA or equipment obtained in any manner with proceeds from grants to RPHA, so that a determination of the Federal/RPHA equity in each piece of equipment may be made.

D. Use equipment furnished by RPHA funds exclusively for Solid Waste Program.

In the event any of the counties fail to do any of the foregoing, then such county shall pay RPHA the equity of Federal/RPHA in any equipment placed with such county.

2. RPHA shall:

A. Provide equipment for each county as set forth in Schedule as follows:

SCHEDULE A - Alexander County;

SCHEDULE B - Burke County;

SCHEDULE C - Caldwell County;

SCHEDULE M - McDowell County.

B. Monitor and evaluate programs to see that terms of this agreement are complied with by each county and to determine if there has been a breach of this agreement. No determination of a breach of this agreement shall be made unless the North Carolina Department Of Health has first made a determination of such breach.

C. Shall cooperate with each county in order to accomplish the purposes of the Solid Waste Environmental Programs.

IN WITNESS WHEREOF, the parties have executed this Agreement on this the _____ day of _____, 1973.

(SEAL)

REGIONAL PUBLIC HEALTH AGENCY, INC.

BY: _____

ATTEST:

BYRD, BYRD,
ERVIN &
BLANTON

MOORGANTON, N. C. 28655
704-437-4220

*Standard
Burke*

Burke
17
1073

MINUTES OF THE REGIONAL SOLID
WASTE DISPOSAL COMMISSION

The Regional Solid Waste Disposal Commission met in the Board of County Commissioners office in Morganton, North Carolina at 7 P. M. on March 21, 1973.

Those present:

Cyrus Brooks, Chairman	J. M. Lackey, Member
Jack Harmon, Secretary	Jimmy Jacumin, Burke County Commissioner
Jim Hogan, Member	Roland Stump, R. H. C.
Earl Daniels, Member	Norman Schronce, Caldwell County Manager
Clyde Martin, Jr., replacing Rondel Childers, Member	Elmo Pascal, Advisor
Dewey Whisnant, Member	Peter Hecht, Advisor
Lex Honeycutt, Member	

Chairman Brooks called the meeting to order and minutes of the last meeting were unanimously approved.

The members present were informed of the resignation of Max Johnson, Director of the Solid Waste Disposal program. Mr. Johnson's resignation effective April 12, however, is on leave to that date.

Mr. Brooks also announced his resignation as Morganton City Manager to accept a similar position with the City of Rocky Mount and informed members that it would be necessary to elect a new chairman later in the meeting, also to select a vice-chairman since the vacancy in this position had not been filled at the time Victor Denton resigned.

The members discussed the future of the Regional Program, having recently submitted applications for a third year continuation grant and a supplemental grant to provide additional equipment.

Roland Stump of R. H. C. told the group that in his opinion, the supplemental grant might be approved, however, the continuation grant may not, meaning that counties would need to place more operational funds into the program.

A motion was made by Dewey Whisnant that the Commission recommend to the counties that they continue in the Regional Program for at least another year, providing the supplemental grant is approved.

Motion was seconded by Jack Harmon.

Ayes: All

Nays: None

At this time (7:45 P. M.), the meeting was recessed to meet with the Board of Governors of the Regional Public Health Agency, with the meeting to continue following the meeting with RPHA Board of Governors.

The meeting was continued at 9:05 P. M. in Burke County Manager's office.

Members accepted with regret the resignation of Cyrus Brooks, Chairman, and expressed appreciation to Mr. Brooks for the excellent work he had done as chairman.

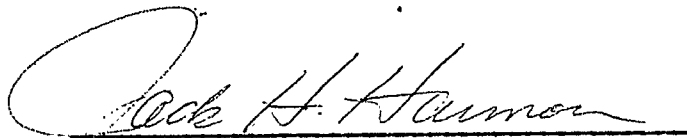
After considerable discussion, a motion was made, seconded and unanimously approved to name Dewey Whisnant as chairman and J. M. Lackey as vice-chairman.

Upon motion made, seconded and unanimously approved, it was decided to ask Ralph Vess, who is employed as a mechanic by the Commission, to serve as Interim Director and that if Mr. Vess rejected this proposal, to call upon each county to determine if they might have a person who could serve as Interim Director.

It was agreed that during the next ninety days, each county would be asked to keep up and maintain the entrance to its landfill.

Also unanimously approved that the chairman serve as dispersing agent for funds until such time as full-time director is employed.

There being no further business, meeting was adjourned at 9:30 P. M.

A handwritten signature in cursive script, reading "Jack H. Harmon", written over a horizontal line.

Secretary

Drexel Enterprises
Drexel, North Carolina 28619
Telephone (704) 437-2311

Burke
RECEIVED

MAR 1 1973

**SANITARY ENGINEERING
DIVISION**

February 28, 1973

Mr. O. W. Strickland, Superintendent
Solvents Waste Management Program
N. C. STATE BOARD OF HEALTH
Raleigh, North Carolina 27600

DE

Dear Mr. Strickland:

Our Mr. Larry McDougal has notified me that you are possibly able to assist us in disposing of combustible solid waste materials from our finishing departments. We estimate we are accumulating approximately one hundred drums of fifty-four gallons each per year of materials consisting of hardened filler (earthen), finishing rags that have been saturated and dried, protective coatings stripped from the walls of finishing booths, lacquer residue swept up from booth floors, etc.

We would be very grateful if you would advise us of a land fill operation to which these waste products may be hauled. As you know, we have plants in North Carolina located from High Point to Whittier, and these materials are accumulating in all of our plants.

Thank you for any assistance you can give us in this matter.

Very truly yours,

Sam W. Freeman

Sam W. Freeman
Vice President for Purchases

SWF/bws

RECEIVED

DEPARTMENT OF HEALTH
DIVISION

SECOND SUPPLEMENTAL REQUEST FOR THE CONTINUATION GRANT
FOR THE
SOLID WASTE PROGRAM - REGION D

"The preparation of this report was supported through a grant to the North Carolina Department of Administration under Section 202 of the Appalachian Regional Development Act."

Submitted By: Blue Ridge Health Council
Through
The Regional Health Council of Eastern Appalachia, Inc.

FEBRUARY 15, 1973

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA
201 SOUTH GREEN STREET
MORGANTON, NORTH CAROLINA 28655
704-433-1636

February 15, 1973

Mr. William LeDoux Bondurant
Director
Department of Administration
116 West Jones Street
Raleigh, North Carolina 27602

Attention: Mr. Elmer Johnson

Re: Supplemental Request for the Continuation Grant
for the Solid Waste Program, Region D; for
Budget Period August 1, 1972 through July 31, 1973,
in the amount of \$171,281 total ARC Request. (This
amount includes a second Supplemental equipment and
operations request of \$66,048 ARC Funds). ARC# 0451-023-73

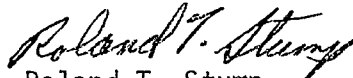
Dear Mr. Bondurant:

Transmitted herewith are eighteen (18) copies of a supplemental
request to the subject grant.

The Regional Health Council concurred with this supplement on
January 31, 1973 and solicits your support of the same.

Thank you for your consideration.

Sincerely,


Roland T. Stump
Executive Director

RTS/hhc

Enclosures (18)

THE APPALACHIAN REGIONAL COMMISSION

1666 Connecticut Avenue, N. W.

Washington, D. C. 20235

PROJECT APPLICATION - NON-CONSTRUCTION

Four (4) copies of project application (including 4 copies of basic Federal grant application) should be forwarded to Director, Program Operations Division, Appalachian Regional Commission, 1666 Connecticut Avenue, N. W., Washington, D. C. 20235. Section 202 project applications require additional copies (check guidelines). Section 211B and 302 project applications use this form (follow instructions listed in guidelines).

ARC Control No. _____

1. Identification

Project Name

Location

State

A continuation Grant for Solid Waste

Region D

North Carolina

2. ARC Program (check appropriate box)

A. Health Demonstration - ☒ Demonstration Area ☐ Comprehensive Health Planning ☐ Primary Care Delivery System

B. Child Development - ☐ General

C. Vocational Education - ☐ 211 A ☐ 211 B

D. 302 State Research

☐ Education ☐ Health ☐ Child Development ☐ Coal (Environmental) ☐ Youth Leadership ☐ Manpower ☐ Veterans

☐ All other

3. Type of Submission - ☐ Informal (Draft) ☒ Formal

4. Stage of Application - ☐ Initial ☐ Plan Amendment

☐ Continuation ☒ Project Revision (Supplemental Request)

5. Type of Project -

A. ☐ Planning B. ☒ Operations (including equipment) C. ☐ Equipment only D. ☐ Training and/or Technical Assistance

6. Budget Period requested this application; dates: From 8-1-72 To 7-31-73

7. Cost requested for this Budget Period

	<u>Operations or Planning</u>		<u>Equipment</u>		<u>* Total</u>	
	\$	%	\$	%	\$	%
ARC Funds	\$ 64,417	33 1/3%	\$106,864	80%	\$171,281	52%
Other Federal Funds	-0-		-0-		-0-	
Non-Federal Funds	128,833	66 2/3%	26,716	20%	155,549	48%
Total Cost	\$193,250	100 %	\$133,580	100%	\$326,830	100%
Specify source of other Federal funds		none				
Are other Federal funds approved?	no		In negotiation	no		
						K) No

8. Costs approved for this Budget Period (to be completed by ARC staff)

	<u>Operations or Planning</u>		<u>Equipment</u>		<u>Total</u>	
	\$	%	\$	%	\$	%
ARC Funds						
Other Federal Funds						
Non-Federal Funds						
Total Cost						
Changes concurred in by State Rep.						

By _____ Name _____ Date _____
Staff Coordinator

9. Where will project be conducted? (Specify counties and/or cities)

Alleghany, Ashe, Avery, Mitchell, Watauga, Wilkes, and Yancey Counties, N. C.

10. Name and Telephone Number of person who prepared this document and can discuss its content with reviewers
Carter Perkins, Assistant Director, Blue Ridge Planning and Development Commission

11. Applicant Organization: (Legal Name, Address, Street, City, State & Zip)

Blue Ridge Health Council, Watauga, Ashe, and Alleghany Health Dept., Boone, N.C. 28607
☐ State ☐ County ☒ Private Non-Profit ☐ Other

*Includes Supplemental Request of: \$65,248 (ARC), \$27,482 (Applicant Share), and \$92,730 (Total).

12. Project Director: (Name, Title, Address, Zip; Telephone: Area Code & Number)
Andrew Yasinsac, Project Director, Watauga, Ashe, and Alleghany Health Dept., Boone,
North Carolina 28607 (704) 297-2126
13. Responsible Officer: (Name, Title, Address, Zip; Telephone: Area Code & Number)
John Wilson, President, Blue Ridge Health Council, Appalachian State University,
College of Business, Boone, North Carolina 28607 (704) 262-2057
14. Financial Officer: (Name, Title, Address, Zip; Telephone: Area Code & Number)
J. Harris Campbell, Treasurer, Blue Ridge Health Council, Bank of North Carolina,
Boone, North Carolina 28607 (704) 264-2481

ONLY EXECUTE FOLLOWING IF SECTION 202 FUNDS ARE REQUESTED.

15. (a) AGREEMENT: The undersigned accept, as to any grant awarded, the obligation to apply those funds in accordance with applicable Federal Laws, including Section 202, 302 (e) and 402 of the Appalachian Regional Development Act of 1965, as amended, and to comply with grants policies established by the Department of Health, Education, and Welfare and pertinent to this program in effect at the time of the award, and with any special conditions that may be a part of the award. The undersigned also certify that personnel associates with the project have no commitments or obligations, including those with respect to inventions, inconsistent with DHEW Regulations (42 C.F.R. part 8). The undersigned further agree to comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the Regulations pursuant thereto, and state that the formally filed or attached Assurance of Compliance with such Regulations (Form HEW 441) applies to this project.

Responsible Officer: John Wilson (Signature) 2-15-73 (Date)

Project Director: Andrew Yasinsac (Signature) 2-15-73 (Date)

Reg. Health Council Officer: Roland T. Stump (Signature) 2-13-73 (Date)

ONLY EXECUTE FOLLOWING IF SECTION 211A, 211B, & 302 FUNDS ARE REQUESTED.

15. (b) I hereby request Appalachian Act grant funds in the amount identified above and if, provided, agree to apply those funds in accordance with applicable Federal laws, including Section 224 (b), 302 (e), and 402 of the Appalachian Act.

Signature of Responsible Officer

Date

(If Section 211 A Funds are requested, vocational education director should sign)

STATE APPROVAL

16. This application has been evaluated and approved as meeting the requirements for assistance under the Appalachian Regional Development Act of 1965, as amended. Where required by OMB Circular A-95 for planning grants, the appropriate project review clearinghouses were given an opportunity to review the proposal and comment:

() Comments attached () No comments

State Representative _____ (Name) _____ (Title)

_____ (Signature) _____ (Date)

TABLE OF CONTENTS

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V. Budget Justification	vii
VI. Narrative to the Supplemental Request for the Continuation Grant for the Solid Waste Project in Region D	1

APPENDICES

- I. Alleghany County Budget
- II. Wilkes County Budget
- III. Letters of Endorsement

REVISED

202 OPERATING AND EQUIPMENT PROJECT BUDGET

GRANT NO. ARC# 0451-023-73BUDGET PERIOD 8-1-72 to 7-31-73

PROJECT TITLE: A Continuation Grant for Solid Waste Program - Region D (Including two Supplemental Requests)

APPLICANT ORGANIZATION: Blue Ridge Health Council

BUDGET ITEM	Annual Salary	Portion of Time	Total Project Costs
<u>Personnel</u>			
Project Director	\$ 12,600	100%	\$ 12,600
Mechanic & Alternate Operator	8,500	100%	8,500
Secretary-Bookkeeper	2,400	50%	2,400
Landfill Equipment Operators 6 @	7,500	100%	45,000
Truck Operators 6 @	6,000	100%	36,000
Fringe Benefits (10%)			10,450
Total Personnel			\$ 114,950
<u>Supplies</u>			
Office Supplies			\$ 1,000
Total Supplies			\$ 1,000
<u>Travel</u>			
Project Director and Mechanic @ 10¢/mile			\$ 3,000
Total Travel			\$ 3,000
<u>Other Expenses</u>			
Telephone and Utilities			\$ 2,000
Insurance on Equipment and License			3,500
6 Loaders @ 6,500 hours @ \$4 per hour			26,600
@ 125 hours per week			
6 Collection Trucks @ 20,000 miles per			30,600
unit - 100,000 miles @ 50¢ per mile			
Repairs and Maintenance @ \$1,000 per unit			11,600
per year			
Total Other Expenses			\$ 74,300

BUDGET ITEM	Annual Salary	Portion of Time	Total Project Costs
5. Total Operating Costs			\$ 193,250
6. Less Anticipated Income (Counties Share @ 66 2/3%)			\$ 128,833
7. Anticipated Operating Deficit			\$ 64,417
8. <u>Sources of Income</u>			
Wilkes County		\$ 51,725	
Ashe County		11,668	
Watauga County		23,336	
Avery County		11,668	
Mitchell County		11,668	
Yancey County		11,668	
Alleghany County		7,100	
Total Income		\$128,833	

<u>Equipment</u>	<u>Total Cost</u>	<u>Applicant Share</u>	<u>"202" Cost</u>
*1 Front End Loader	\$ 32,000	\$ 6,400	\$ 25,600
**1 Container Collection Truck	27,000	5,400	21,600
*** Building and Fences	5,500	1,100	4,400
***1 Front End Loader (Alleghany Co.)	32,000	6,400	25,600
***1 Container Collection Truck (Wilkes Co.)	27,000	5,400	21,600
***40 Containers @ \$252	10,080	2,016	8,064
Total Equipment Cost	\$133,580	\$ 26,716	\$106,864

* Equipment for landfill was underestimated in original grant request
 ** Equipment in 1st Supplemental Request
 *** Equipment in 2nd Supplemental Request

Source of Applicant's Share

Wilkes County	-	\$ 13,816
Mitchell & Yancey Counties	-	5,400
Alleghany County	-	7,500

Total Request for Operations (Budget Deficit)	\$ 64,417
Total Request for Equipment	106,864
Total Federal Funds Requested for Equipment and Operation	\$171,281

BUDGET JUSTIFICATION

INSTRUCTIONS: Show justification for specific items or categories listed in the detailed budget for which the need is not self-evident. Justifications should clearly indicate that the items being requested are essential to the achievement of the stated project objectives and the conduct of the proposed procedures.

The original continuation project for Region D requested a total of \$83,020, from ARC; the 1st Supplemental request requested a total of \$104,620 from ARC; and the second supplemental request which includes the two others totals \$171,281.

The following information is submitted in support of the second supplemental request for the continuation grant for the Solid Waste Project in Region D.

Personnel: One landfill operator is requested by Alleghany County and one truck operator for Wilkes County. The salary and fringe benefits shown in the personnel section of the budget are designed to be competitive with the salaries paid by local industry and contractors within the area. It should be noted that a substantial portion of the operating budget will be paid by each of the respective counties.

Other Expenses: Fuel and equipment maintenance costs of \$4,300 for the equipment is considered nominal.

Equipment: A 25 cubic yard packer truck and 40 containers is requested by Wilkes County and a front-end loader, building, and fences are requested by Alleghany County. The fencing will be erected to prevent individuals from entering the landfill area after hours. Both Wilkes and Alleghany County will provide 20 % of the equipment cost. Please refer to the project narrative for a full justification for these items.

NARRATIVE TO THE SUPPLEMENTAL REQUEST
FOR THE CONTINUATION GRANT
FOR THE SOLID WASTE PROJECT
IN REGION D

Progress is being made toward achieving the original project objectives of the Solid Waste Program in Region D. Two weak points in the program, however, have been a deterrent in fully reaching the anticipated goal; these being the non-participation of Alleghany County in the solid waste program and the under-estimation of equipment.

With the inclusion of Alleghany County into the solid waste project, the entire area of Region D counties will be active in the program. In the initial funding Alleghany County did not participate for several reasons: 1) The county did not wish to join with Ashe County and operate a joint landfill near the county line because of the rugged mountainous terrain and bad road conditions, especially during the winter months when ice and snow are common. 2) they were not certain whether such an operation would be financially feasible due to the distance involved to reach the landfill. 3) the relationship between the Town of Sparta and Alleghany County was not clear in relation to local expenses involving the establishment and operation of the solid waste project and this has since been decided upon.

It has since been established that a landfill will not have to be operated in conjunction with another county, and Alleghany County and the Town of Sparta are in agreement on their needs and responsibilities of the landfill. Therefore, they are now requesting a grant to assist in the expenses of equipment, personnel, and other cost necessary to operate a solid waste project. (See Letters of Endorsement in Appendix III). Alleghany County currently has a ten

year lease on a site for a landfill that will meet the North Carolina State Board of Health's requirements for a sanitary landfill operation. Once the landfill is in operation it is the intent of the Alleghany County Commissioners to franchise the entire collection system for the county to a private collector who has been operating a successful collection system for the past nine months in most areas of the county. The Town of Sparta has operated its own system for a number of years.

Wilkes County has participated in the Region D Solid Waste Program since its initiation and now needs to expand these services. Being the largest county in Region D in both land area and population (49,524) Wilkes County now needs forty (40) additional containers and a packer truck to better serve the county through the solid waste program. The need for this additional equipment items can readily be understood when the operation in Wilkes County is compared with the one in Watauga County. Watauga County currently is using ninety (90) containers to do an adequate job while Wilkes County has only seventy (70) containers. Wilkes County has a population of 49,524 people to Watauga County's population of 23,404. With the additional containers requested and to allow for equipment breakdown and additional packer truck represents a minimum equipment request. (See Letters of Endorsement, Appendix III).

In the opinion of the Blue Ridge Health Council and the Regional Health Council of Eastern Appalachia that this second supplemental request is essential to the success of the Solid Waste Program in Region D.

APPENDIX I

ALLEGHANY COUNTY BUDGET

1. <u>Personnel</u>	<u>Annual Salary</u>	<u>Per Cent of Time</u>	<u>Project Cost</u>
Landfill Operator (1)	\$7,500	100%	\$7,500
Fringe Benefits (10%)			750
			<u>\$8,250</u>
2. <u>Supplies</u>			
None			-0-
3. <u>Travel</u>			
None			-0-
4. <u>Other Expenses</u>			
Insurance on Equipment and License			1,200
Fuel			400
Maintenance on Equipment			800
			<u>\$2,400</u>
5. Total Operating Cost			\$10,650
6. Less: Anticipated Cost			7,100
County Cash Contribution			
7. Operating Deficit			3,550
8. <u>Equipment</u>	<u>Total</u>	<u>Applicant</u>	<u>202 Costs</u>
Front End Loader	\$32,000	\$6,400	\$25,600
Building and Fences	5,500	1,100	4,400
	<u>\$37,500</u>	<u>\$7,500</u>	<u>\$30,000</u>
9. Source of Applicant's Share			7,500
County Cash Contribution			
10. Total Operating Deficit			3,550
Total Equipment & Renovation			<u>30,000</u>
	Total ARC Funds Requested		\$33,550

A P P E N D I X I I

WILKES COUNTY BUDGET

1.	<u>Personnel</u>	<u>Annual Salary</u>	<u>% of Time</u>	<u>Project Cost</u>
	Truck Operator (1)	\$ 6,000	100%	\$ 6,000
	Fringe Benefits (10%)			600
				<u>\$ 6,600</u>
2.	<u>Supplies</u>			
	None			-0-
3.	<u>Travel</u>			
	None			-0-
4.	<u>Other Expenses</u>			
	Insurance of Equipment & License			\$ 300
	Fuel			800
	Maintenance on Equipment			800
				<u>\$ 1,900</u>
5.	Total Operating Cost			\$ 8,500
6.	Less: Anticipated Income			
	County Cash Contribution			\$ 5,666
7.	Operating Deficit			\$ 2,834
8.	<u>Equipment</u>	<u>Total</u>	<u>Applicant Share</u>	<u>202 Cost</u>
	25 Cu. Yd. Packer Truck	\$27,000	\$ 5,400	\$21,600
	40 Containers @ \$252	<u>\$10,080</u>	<u>\$ 2,016</u>	<u>\$ 8,064</u>
		\$37,080	\$ 7,416	\$29,664
9.	Source of Applicant Share			\$ 7,416
	County Cash Contribution			
10.	Operating Deficit			\$ 2,834
	Total Request for Equipment and Renovation			<u>\$29,664</u>
	Total ARC Request			\$32,498

A P P E N D I X I I I

TOWN OF SPARTA

TOWN COUNCIL MEMBERS:

ALTON THOMPSON
EARL CALHOUN
GEORGE M. IRWIN
H. EUGENE GRAY
KEMP DUNCAN

SPARTA, N. C. 28675

December 13, 1972

CHARLES CASTEVENS, MAYOR
WORTH B. FOLGER, TOWN ATTY.
ARNOLD T. DUELF, TOWN CLERK

Mr. Roland Stump, Executive Director
Regional Health Council of Eastern Appalachian
201 South Green Street
Morganton, North Carolina 28655

Re: Request for Continuation Grant for Solid Waste Program Region D.

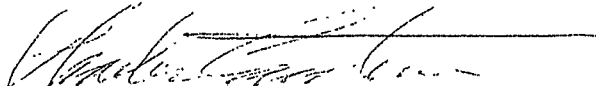
Dear Mr. Stump,

The Town of Sparta endorses the above request.

We will participate with Alleghany County in the operation of a sanitary landfill and share the cost of such operation. The cost will be shared on a 50-50 basis. The Town of Sparta will support the request for funds for the Alleghany County Landfill on the same basis, or \$7,300.00 of the local share.

Your cooperation and assistance will be greatly appreciated.

Sincerely,



Charles Castevens, Mayor

CC/atd

Leo Tompkins
~~Chairman, Board of~~
~~County Commissioners~~
~~Alleghany County~~
~~Sparta, N. C.~~
J. R. GAMBILL
SPARTA, N. C.
~~Chairman, Board of~~
~~County Commissioners~~
~~Alleghany County~~
~~Sparta, N. C.~~
Dale Duncan
Sparta, N. C.

OFFICE OF

ERNEST EDWARDS
REGISTER OF DEEDS

THE BOARD OF COUNTY COMMISSIONERS

ALLEGHANY COUNTY
SPARTA, N. C.

December 13 1972

Mr. Roland Stump, Executive Director
Regional Health Council of Eastern Appalachia
201 South Green St.,
Morganton, North Carolina 28655

Re: Request for continuation
Grant for Solid Waste Program
Region D.

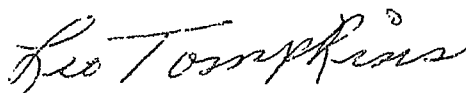
Dear Mr. Stump:

The Alleghany County Board of County Commissioners endorses the above request. We also pledge to support the request in behalf of Alleghany County to operate a sanitary landfill.

We have a working arrangement with the Town of Sparta to share the costs of the land fill operation on a 50-50 basis. We will provide \$7,300.00 or 50 percent of the local share of the request for which \$14,600.00 in local matching funds is required.

Your cooperation and assistance in behalf of this request will be greatly appreciated.

Sincerely,



Leo Tompkins
Chairman, Board of County Commissioners
of Alleghany County

CLYDE R. SEBASTIAN
TRELIA H. KILBY

E. C. ELLER, JR., Chairman

CLYDE LOWE, Vice-Chairman
J. GREENE SHEPHERD

OFFICE OF

WILKES COUNTY BOARD OF COMMISSIONERS

WILKESBORO, NORTH CAROLINA 28697

January 19, 1973

Mr. Roland Stump, Executive Director
Regional Health Council of Eastern Appalachia
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Stump,

We have reviewed the proposed budget for expansion of the solid waste program. The Board of County Commissioners endorses this application and will provide the matching funds to purchase the additional equipment and operational costs. We will also provide other costs for the program not included in the budget.

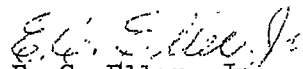
This additional request is necessary due to a revaluation of the solid waste program for Wilkes even though the collection services has not yet been started. Wilkes County has a larger population than any two of the other counties, (49,524) in the region, as well as a much larger total land area (765 sq. mile). We have learned from participating with the counties who are operating their collection services that one truck will not be adequate in Wilkes County, especially if it breaks down, waste would accumulate rapidly. Also the number of containers is being increased because of what we have learned from the others and problems they have had. The program has been well received by residents in the other counties and we feel our citizens will do likewise as they use the containers.

We have some private collectors franchised but in order to provide adequate service we will need the additional truck and containers requested in this supplemental application.

We will continue to evaluate our program and improve it where necessary. We feel that financial assistance with this additional request will help us to implement a more adequate solid waste program.

Your efforts and assistance are greatly appreciated.

Sincerely,


E. C. Eller, Jr.
Chairman

ECE/bb

Wilkes County Health Dept.

CO-OPERATING WITH

North Carolina State Board of Health

WILKESBORO, NORTH CAROLINA 28697

January 19, 1973

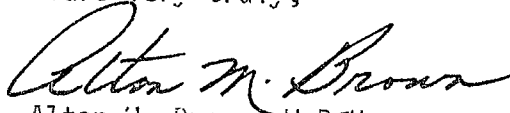
Mr. Roland T. Stump, Executive Director
Regional Health Council of Eastern Appalachia
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Stump:

The Wilkes County Health Department has endorsed the supplemental request to expand the solid waste program for Wilkes County through the addition of one (1) truck and forty (40) containers. There is a definite need for the equipment as listed.

Your consideration of this matter is appreciated.

Yours very truly,



Alton M. Brown, H.P.H.
Director

AMB/jr

District Health Department

ALLEGHANY - ASHE - WATAUGA COUNTIES

Please Reply To _____

Headquarters

Watauga County
Boone, N. C.

Carl D. Tuttle, M. P. H.
Director

January 18, 1973

Other Offices

Alleghany County
Sparta, N. C.

Ashe County
Jefferson, N. C.

W. R. Richardson, R. Ph.
Chairman Board of Health

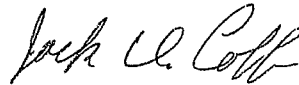
Mr. John B. Wilson, President
Blue Ridge Health Council
P. O. Box 233
Boone, North Carolina

Dear Mr. Wilson:

The Environmental Health Committee of the Blue Ridge Health Council has endorsed the supplemental request to expand the solid waste program to Alleghany County and provide an additional truck and forty bulk containers for Wilkes County.

With expansion of the program to Alleghany County all open dumps in Region D will be closed out. The additional equipment for Wilkes County is necessary if the container system is successful in that county.

Sincerely,



Jack D. Cobb, Chairman

am

District Health Department

ALLEGHANY - ASHE - WATAUGA COUNTIES

Please Reply To _____

Headquarters

Watauga County
Boone, N. C.

Carl D. Tuttle, M. P. H.
Director

January 18, 1973

Other Offices

Alleghany County
Sparta, N. C.

Ashe County
Jefferson, N. C.

W. R. Richardson, R. Ph.
Chairman Board of Health

Mr. John B. Wilson, President
Blue Ridge Health Council
P. O. Box 233
Boone, North Carolina

Dear Mr. Wilson:

The Alleghany-Ashe-Watauga District Health Department has endorsed the supplemental request to expand the solid waste program to Alleghany County and provide an additional truck and forty bulk containers for Wilkes County.

With expansion of the program to Alleghany County all open dumps in Region D will be closed out. The additional equipment for Wilkes County is necessary if the container system is successful in that county.

Sincerely,



Carl D. Tuttle
Director

CDT/am

MOUNTAIN SCENIC PLANNING AND
ECONOMIC DEVELOPMENT COMMISSION

TAYLOR HOTEL BUILDING

P. O. BOX 565

SPRUCE PINE, NORTH CAROLINA 28777

TELEPHONE 704/765-7323

RUTH S. GLASS
EXECUTIVE DIRECTOR

January 2, 1973

Mr. Peter Hecht
Regional Health Council of Eastern Appalachia
201 South Green Street
Morganton, North Carolina

Dear Mr. Hecht:

Re: Supplemental Request for the Continuation Grant
for the Solid Waste Program, Region D

We have completed our review of this project, and we find it consistent with the plans of the region and not in conflict with other programs. We are pleased to recommend favorable consideration of your application by the Appalachian Regional Commission.

This letter may be used as the official Region D Clearinghouse comment to accompany your application.

Sincerely,


Ruth S. Glass

RSG:mb

cc: Randolph Hendricks
Alfred Houston

BLUE RIDGE HEALTH COUNCIL, INC.

SERVING THE COUNTIES OF ALLEGHANY, ASHE, AVERY, MITCHELL, YANCEY AND WATAUGA

P. O. Box 233
Boone, N. C. 28607

Executive Committee

Clifford Aldridge
F.L. Blair
Mrs. Virginia Addington
Don Carlisle
Jack Cobb
Martha Guy
Mr. Alfred Houston
Mrs. Ruth Johnson
Carl Tuttle

F.L. Blair
President
704/733-5020

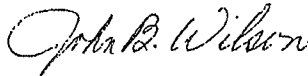
January 5, 1973

The Regional Health Council
of Eastern Appalachia
201 South Green St.
Morganton, N. C. 28655

Dear Sirs:

The Blue Ridge Health Council (area D) has reviewed the supplemental request for solid waste for Wilkes and Alleghany Counties. We find that the equipment is urgently needed and that no other source of funds is available for the equipment. Therefore, this council strongly endorses this proposal.

Sincerely,



John B. Wilson, Chairman
Blue Ridge Health Council

JBW/lw

BLUE RIDGE HEALTH COUNCIL, INC.

SERVING THE COUNTIES OF ALLEGHANY, ASHE, AVERY, MITCHELL, YANCEY AND WATAUGA

P. O. Box 233
Boone, N. C. 28607

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Martha Guy
Mr. Alfred Houston
Mrs. Ruth Johnson
Carl Tuttle

F.L. Blair
President
704/733-5020


January 5, 1973

Regional Health Council
of Eastern Appalachia
201 South Green St.
Morganton, N. C. 28655

Dear Sirs:

The Environmental Committee of the Blue Ridge Health Council (area D) has reviewed the supplemental request for solid waste for Wilkes and Alleghany Counties and finds that the equipment is urgently needed and that no other source of funds is available for the equipment. Therefore, this committee strongly endorses this proposal.

Sincerely,


Jack Cobb, Chairman
Environmental Committee
Blue Ridge Health Council

JC/lw

*Perkins
Strickland
Files*

E. Regional Public Health Agency, Incorporated
201 South Green Street
Morganton, North Carolina 28655

*Burke
LOR*

EJ

January 30, 1973

RECEIVED

UNITARY ENGINEERING
DIVISION

Herbert A. Hudgins, M.D.
Associate Regional Health Director
for Health Services Delivery
Department of Health, Education and Welfare
57th Street, N.E.
Room 423
Atlanta, Georgia 30323

Subject: Appalachia Grant No. 04-H-000005-02-0

Dear Dr. Hudgins:

In July, 1972, Mr. Jacob Smith of your staff and Mr. Thomas Strickland of the Environmental Protection Agency, acting as consultant to the Appalachia Program, made a site visit to review the Regional Solid Waste Program in Burke, McDowell, Alexander and Caldwell Counties in North Carolina. As a result of that visit, a significant number of deficiencies were noted and were transmitted to the Commission in a letter of August 4, 1972 under your signature.

The Solid Waste Commission is very much aware of the need to improve and has made every effort to do so. We did bring these four landfills up to an acceptable level, as was subsequently indicated by Mr. Smith and Mr. Strickland in a later site visit. It has been our intention to maintain these at an acceptable level at all times, both to demonstrate that the confidence of the Appalachian Regional Commission and our local governing bodies was warranted and in order that we might give good service to our local communities.

This letter is to advise you and your office that we have recently been experiencing some problems with the Caldwell County landfill. We are operating on the site of the old City of Lenoir modified dump while searching for a completely new site. This site has certain operational problems of which both Mr. Smith and Mr. Strickland are aware. The particular problem at this time is that of fire. Fire has broken out through spontaneous combustion under the surface of the landfill in the old material that was placed there by the City of Lenoir in years past. This has burned sufficiently that the smoke has been emitted into the atmosphere. The equipment and personnel of the Solid Waste Commission have of necessity been diverted from their primary purpose of landfill operation in order that they might fight this fire.

This has caused our landfill to become unsightly in that there is exposed refuse that has not been compacted in accordance with the State's standards and those of the Appalachian Regional Commission. The general appearance of the site has deteriorated also. In addition, the emission of smoke into the atmosphere from the landfill is certainly unacceptable to our Commission, the State, and all regulatory agencies involved.

There has been a meeting with representatives of the Caldwell County Board of Commissioners and with the City of Lenoir to request aid from them in fighting the fire and returning the landfill to an acceptable condition under the terms of our grant. We invited the North Carolina State Board of Health District Representative to this meeting, but he was unable to attend due to previous commitments. We have, however, kept him advised of the situation. We have as of this time brought the fire under control by digging out the burning debris and mixing sufficient soil with the burning material to extinguish the fire. The County of Caldwell has made available equipment and personnel to perform this task and to assist in getting the landfill operation under control. We basically have the problems solved. We are inviting Mr. Jim Fulp, the District Sanitarian of the Board of Health, to inspect the site on Monday, January 29, 1973. We think that it will meet the standards as set out in our grant.

A primary deficiency which has existed in our program has been the inability to locate a new site for the Caldwell County landfill. The central area of the County that would serve the most people on a one-landfill basis is heavily populated, and it has been impossible until this time for the County to acquire the land, although the County has worked very diligently. The real solution to the problem, in my opinion, is the approval of the recently requested fifth landfill site which was made a part of a recent supplemental budget request. There is land available in the area north of the City of Lenoir, but this area is not generally satisfactory to the entire County because of haul distance. The County has a tentative purchase arranged of a 60-acre tract of land in this area north of the City contingent upon approval of the fifth landfill site for our regional program. This landfill would be located in the eastern end of Caldwell County or Burke County and would eliminate the need for a central Caldwell site. So long as we have to operate on the old City of Lenoir site, it would be difficult and costly to operate a satisfactory landfill program.

The purpose of this letter is to inform you and your staff of the recent problems which we have encountered and the actions taken to counteract them. We appreciate very much the cooperation which Mr. Smith and Mr. Strickland have exhibited in the past, and we feel that in all fairness to them, they should be kept aware of the progress and problems which we are encountering. They are generally aware of our need for a fifth landfill site and I think could furnish you any information which you might need in your review of our supplemental request. We certainly need this site and solicit your positive endorsement of the application.


Dr. Herbert A. Hudgins

Page 3

January 30, 1973

If there are any questions or additional information is needed,
please do not hesitate to let us know.

Very truly yours,



Cyrus Brooks

Chairman

Regional Solid Waste Commission

CB/cis

cc: Mr. Jacob M. Smith
Mr. Tom Strickland
Mr. Jim Fulp
✓ Mr. Sid Usry

Burke
NR

November 11, 1972

Mr. Max Johnson, Director
Regional Solid Waste Disposal Program
Appalachia Regional Health Council
Morganton, North Carolina 28655

Dear Mr. Johnson:

I received a call from Mrs. M. A. Clark, Post Office Box 124, Jonas Ridge, North Carolina, regarding the problem of solid waste disposal in the area. She informed me that SR 123 has been closed and that the containers had been removed from the area and that the old disposal site had been closed.

I realize that there are certain problems connected with the collection and disposal of solid waste in some of these areas and that it might be advisable to seek cooperation from the Region D Project. I have studied the maps of the area and it would appear that this area might be more economically serviced by the project that is operating in Avery County.

I would appreciate your contacting Mrs. Clark and discussing this problem with her as I am sure that she is interested in cooperating to assure the proper disposal of solid waste.

If the members of my staff can provide you assistance, I shall appreciate hearing from you.

Very truly yours,

Sidney H. Usary, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

SHU:bm

cc: Mrs. M. A. Clark
Mr. J. H. Fulp, Sr.

Burke
SM

December 12, 1972

Mr. Edsel L. Haney
Health Planner
State Planning Division
Department of Administration
Raleigh, North Carolina 27603

Re: Supplemental Request for the Continuation
Grant for the Solid Waste Program for
Alexander, Burke, Goldwell, and McDowell
Counties

Dear Mr. Haney:

The members of my staff have reviewed the proposed supplemental request for the ~~Eastern Appalachia solid waste~~ project. We are of the opinion that this request for additional funding should receive favorable consideration in order to provide a more effective and efficient solid waste program in the Eastern Appalachia four-county area.

In the original Appalachia project, the North Carolina State Board of Health made the recommendation that five sanitary landfill sites would be needed in order to adequately handle the solid waste program in that area. The area that will be served by this additional site is heavily populated and does have a large solid waste generation factor. The area has created certain problems during the period of this project and the sanitary landfill properly located and operated could alleviate this problem.

The following comments and recommendations are made regarding this application and hope that favorable consideration will be given in order to effectively handle the problem in the total Eastern Appalachia area:

1. The purchase of two additional compactor trucks along with 100 additional containers is justifiable and needed to adequately handle the large volume of solid waste that is now causing a problem on the present collection routes. This additional equipment will provide a collection truck for each of the four counties and should create a more efficient operation.
2. It is recommended that consideration be given to revising this request to include two large landfill compactors for use on the two large sites. One of these units is needed at the Burke County site and the other at the Goldwell County site. The volume of solid waste being received at these

Mr. Edsel L. Honey

Page 2

December 12, 1972

sites has far exceeded estimates due to the large quantities of industrial waste that was rather difficult to anticipate. The purchase of these larger units would then provide one compactor unit for the sanitary landfill site that could be transferred for use at the new sanitary landfill. This unit could adequately handle the anticipated solid waste at this site. The other unit that is at the Burke County site could be transferred to the McDowell site and provide needed assistance for operation on that site.

If additional information is needed regarding this request, I shall appreciate hearing from you.

Very truly yours,

Sidney H. Urry, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

SHU:lm

cc: Dr. Richard H. Graham
Mr. Max Johnson



STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION

116 WEST JONES STREET
RALEIGH 27603

STATE PLANNING DIVISION

RONALD F. SCOTT
STATE PLANNING OFFICER

ROBERT W. SCOTT
GOVERNOR

W. L. TURNER
DIRECTOR

November 22, 1972

OFFICE OF
COMPREHENSIVE HEALTH PLANNING
(919) 829-4139

ELMER M. JOHNSON
ASSISTANT STATE PLANNING OFFICER

Dr. Richard H. Graham, Chairman
Regional Public Health Agency ✓
338 South Mulberry Street
Lenoir, North Carolina

Dear Dr. Graham:

Re: Supplemental Request for the
Continuation Grant for the
Solid Waste Program for Alex-
ander, Burke, Caldwell, and
McDowell Counties

We have received this request for supplemental funds for this
solid waste project.

It is the policy of the office of Comprehensive Health Planning
to have these proposals reviewed by the Sanitation Department,
State Board of Health. We have strongly encouraged the Regional
Health Council to always use this resource in this type of planning.
Mr. Strickland of the Sanitation Department advised me today that
he met with Mr. Strickland (Environmental Protection Agency), Mr.
Johnson (Project Director), Mr. Stump and others a couple of months
ago to discuss this project and asked that the State Board of Health
Sanitation Department be provided the opportunity for further con-
sultation regarding changes in the solid waste program. Mr. Strick-
land stated that he has not been contacted to date.

We will be glad to re-consider this project after Mr. Strickland
or his representative has reviewed it. We will hold the plan here
in the interim.

Sincerely,

Edsel L. Haney
Health Planner

ELH:cba

cc: Mr. Roland Stump
Mr. O. W. Strickland

RECEIVED

NOV 29 1972

SANITARY ENGINEERING
DIVISION

Regional Public Health Agency, Incorporated
201 South Green Street
Morganton, North Carolina 28655

November 30, 1972

RECEIVED

DEC 2 1972

SANITARY ENGINEERING
DIVISION

Mr. Sidney H. Usry, Chief
Solid Waste and Vector Control Section
Sanitary Engineering Division
P.O. Box 2091
Raleigh, North Carolina 27602

Dear Mr. Usry:

Enclosed you will find a copy of a supplemental request for ARC funds to upgrade the Solid Waste Program for Alexander, Burke, Caldwell and McDowell Counties.

The request is for two additional collection trucks and equipment for a fifth landfill site to serve Eastern Burke and Southern Caldwell County.

The additional trucks would provide a truck for each county and the additional landfill is in keeping with the recommendations originally made by your department.

Jim Fulp worked with me on the request and developing equipment needs.

Thank you for your consideration and review. Please contact me for any clarification or questions that you may have concerning the supplemental request.

Sincerely yours,



Max D. Johnson
Director
Regional Solid Waste Commission

MDJ/cis

Enclosure

cc: Dr. Richard Graham

Draft

A SUPPLEMENTAL REQUEST FOR THE CONTINUATION GRANT
FOR THE
SOLID WASTE PROGRAM FOR
ALEXANDER, BURKE, CALDWELL, AND McDOWELL COUNTIES

"The preparation of this report was supported through
a grant to the North Carolina Department of Administration
under Section 202 of the Appalachian Regional Development Act."

Submitted By: Regional Public Health Agency, Inc.

November 3, 1972

(Through the Regional Health Council of Eastern Appalachia, Inc.)

LETTER OF TRANSMITTAL

THE APPALACHIAN REGIONAL COMMISSION

1666 Connecticut Avenue, N. W.

Washington, D. C. 20235

PROJECT APPLICATION - NON-CONSTRUCTION

Four (4) copies of project application (including 4 copies of basic Federal grant application) should be forwarded to Director, Program Operations Division, Appalachian Regional Commission, 1666 Connecticut Avenue, N. W., Washington, D. C. 20235. Section 202 project applications require additional copies (check guidelines). Section 211B and 302 project applications use this form (follow instructions listed in guidelines).

ARC Control No. _____

1. Identification

Project Name Supplemental Request to the Location

State

Continuation Grant for the Solid

Alexander, Burke, Caldwell,

North Carolina

Waste Program, Old 202 Area

McDowell Counties

2. ARC Program (check appropriate box)

A. Health Demonstration - ☒ Demonstration Area ☐ Comprehensive Health Planning ☐ Primary Care Delivery System

B. Child Development - ☐ General

C. Vocational Education - ☐ 211 A ☐ 211 B

D. 302 State Research

☐ Education ☐ Health ☐ Child Development ☐ Coal (Environmental) ☐ Youth Leadership ☐ Manpower ☐ Veterans

☐ All other

3. Type of Submission - ☐ Informal (Draft) ☒ Formal

4. Stage of Application - ☐ Initial ☐ Plan Amendment

☒ Continuation ☐ Project Revision

5. Type of Project - Supplement

A. ☐ Planning B. ☒ Operations (including equipment) C. ☐ Equipment only D. ☐ Training and/or Technical Assistance

6. Budget Period requested this application; dates: From April 1, 1972 To March 31, 1973

7. Cost requested for this Budget Period

	Operations or Planning		Equipment		* Total	
	\$	%	\$	%	\$	%
ARC Funds	\$ 58,630	34%	\$159,440	80%	\$218,070	80%
Other Federal Funds	-0-	-	-0-	-	-0-	-
Non-Federal Funds	112,147	66%	39,860	20%	152,007	20%
Total Cost	\$170,777	100%	\$199,300	100%	\$370,077	100%

Specify source of other Federal funds

Indirect Costs Requested? - ☐ Yes

Are other Federal funds approved? In negotiation ☒ No

8. Costs approved for this Budget Period (to be completed by ARC staff)

	Operations or Planning		Equipment		Total	
	\$	%	\$	%	\$	%
ARC Funds						
Other Federal Funds						
Non-Federal Funds						
Total Cost						

Changes concurred in by State Rep. _____ on _____

Name

Date

By _____

Staff Coordinator

9. Where will project be conducted? (Specify counties and/or cities)

Alexander, Burke, Caldwell, and McDowell Counties, N. C.

10. Name and Telephone Number of person who prepared this document and can discuss its content with reviewers

Mr. Max D. Johnson, (704) 433-1636

11. Applicant Organization: (Legal Name, Address, Street, City, State & Zip)

Regional Public Health Agency, 201 South Green Street, Morganton, N. C. 28655

☐ State ☐ County ☒ Private Non-Profit ☐ Other

*Includes \$141,030 ARC Supplemental Requests; \$36,070 Applicant Share Supplemental Requests; A total of \$177,100 Supplemental Request.

12. **Project Director:** (Name, Title, Address, Zip; Telephone: Area Code & Number)
Mr. Max D. Johnson, Director of Solid Waste Program, 201 South Green Street, Morganton,
North Carolina 28655 (704) 433-1636.
13. **Responsible Officer:** (Name, Title, Address, Zip; Telephone: Area Code & Number)
Dr. Richard H. Graham, D.D.S., Chairman of the Board, Regional Public Health Agency, 338
South Mulberry Street, Lenoir, North Carolina 28645 (704) 754-7881.
14. **Financial Officer:** (Name, Title, Address, Zip; Telephone: Area Code & Number)
Mr. John Bleynt, Secretary-Treasurer of the Board, Regional Public Health Agency,
Alba-Waldensian, Inc., Valdese, North Carolina (704) 874-2191

ONLY EXECUTE FOLLOWING IF SECTION 202 FUNDS ARE REQUESTED.

15. (a) **AGREEMENT:** The undersigned accept, as to any grant awarded, the obligation to apply those funds in accordance with applicable Federal Laws, including Section 202, 302 (e) and 402 of the Appalachian Regional Development Act of 1965, as amended, and to comply with grants policies established by the Department of Health, Education, and Welfare and pertinent to this program in effect at the time of the award, and with any special conditions that may be a part of the award. The undersigned also certify that personnel associates with the project have no commitments or obligations, including those with respect to inventions, inconsistent with DHEW Regulations (42 C.F.R. part 8). The undersigned further agree to comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the Regulations pursuant thereto, and state that the formally filed or attached Assurance of Compliance with such Regulations (Form HEW 441) applies to this project.

Responsible Officer: _____ (Signature) _____ (Date)

Project Director : _____ (Signature) _____ (Date)

Reg. Health Council Officer: _____ (Signature) _____ (Date)

ONLY EXECUTE FOLLOWING IF SECTION 211A, 211B, & 302 FUNDS ARE REQUESTED.

15. (b) I hereby request Appalachian Act grant funds in the amount identified above and if, provided, agree to apply those funds in accordance with applicable Federal laws, including Section 224 (b), 302 (e), and 402 of the Appalachian Act.

Signature of Responsible Officer

Date

(If Section 211 A Funds are requested, vocational education director should sign)

STATE APPROVAL

16. This application has been evaluated and approved as meeting the requirements for assistance under the Appalachian Regional Development Act of 1965, as amended. Where required by OMB Circular A-95 for planning grants, the appropriate project review clearinghouses were given an opportunity to review the proposal and comment:

() Comments attached () No comments

State Representative _____ (Name) _____ (Title)

_____ (Signature) _____ (Date)

TABLE OF CONTENTS

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Appendix A

Appendix B

REVISED

202 OPERATING AND EQUIPMENT PROJECT BUDGET

GRANT NO. ARC #0451-017-72

BUDGET PERIOD 4-1-72 through 3-31-73

PROJECT TITLE: A Continuation Grant for Solid Waste Program - Old 202
Area (Including Supplemental Request Items*)

APPLICANT ORGANIZATION: Regional Public Health Agency, Inc.

BUDGET ITEM	Annual Salary	Portion of Time	Project Costs
<u>1. Personnel</u>			
Director of Solid Waste 1@	\$12,900	100%	\$12,900
Director's Assistant 1@	8,060	100%	8,060
Landfill Equip. Operator 4@	6,760	100%	27,040
Scraper Operator 2@	6,760	100%	13,520
Truck Driver 2@	6,760	100%	13,520
Dozer Operator 3@	6,760	100%	20,280
Fringe Benefits (18%)			<u>17,157</u>
Hospitalization (1.5%)			
Social Security (5.2%)			
Workmen's Compensation (1.1%)			
Retirement and Disability (Life) (10.2%)			
TOTAL PERSONNEL			\$112,477
<u>2. Consultant Services</u>			
Consultant Service			\$ 500
TOTAL CONSULTANT SERVICES			<u>\$ 500</u>
<u>3. Supplies</u>			
Office Supplies			\$ 1,000
TOTAL SUPPLIES			<u>\$ 1,000</u>
<u>4. Travel</u>			
Project Director and Assistant			\$ 3,000
TOTAL TRAVEL			<u>\$ 3,000</u>

BUDGET ITEM	Original Continu- ation Request	Supplemental Request	Total Project Cost
5. <u>Other Expenses</u>			
Site Preparation	\$ 4,000	\$ 4,000	\$ 8,000
Telephone and Utilities	2,000		2,000
Uniforms	2,000		2,000
Fuel and Maint. Landfill Equipment	18,000		18,000
Fuel and Maint. Packer Trucks	9,000		9,000
Fencing and Signs	1,000	1,500	2,500
Administrative Services	3,000		3,000
Tools and Mechanical Supplies	2,000		2,000
Site Preparation for Bulk Containers	2,000		2,000
Insurance on Equipment and License	2,000	2,500	4,500
Sanitary Facilities		800	800
	<u>\$45,000</u>	<u>\$ 8,800</u>	<u>\$ 53,800</u>

TOTAL OTHER EXPENSES \$ 53,800

6. Total Operating Cost \$170,777

7. Less Anticipated Sources of Income

Counties Cash Contribution 112,147 **

** Total Includes Local Support for Supplemental Request of \$2,410

8. Total Project Operation Deficit \$ 58,630

9. <u>Equipment</u>	<u>Total Cost</u>	<u>Applicant Share</u>	<u>"202 Costs"</u>
1 Equipment Shed	\$ 2,000	\$ 400	\$ 1,600 *
1 Office Trailor	1,500	300	1,200 *
1 TD9 or Equal Dozer	23,000	4,600	18,400
1 Used TD9 Dozer	8,000	1,600	6,400
Packer Truck 2@	60,000	12,000	48,000 *
Landfill Compactor	45,000	9,000	36,000 *
Scraper	34,000	6,800	27,200 *
Containers 100@	24,000	4,800	19,200 *
Radio Communications 2@	1,800	360	1,440 *
	<u>\$199,300</u>	<u>\$39,860</u>	<u>\$159,440 **</u>

** Total Includes Supplemental Request of \$134,640 for Equipment.

10. Source of Applicants Share:

Local Cash Contributions from Counties \$ 39,860 **

** Total Includes Supplemental Local Support of \$ 33,660 for Equipment.

11. Total Request for Operations (Budget deficit) \$ 58,630
Total Request for Equipment 159,440

TOTAL ARC FUNDS REQUESTED FOR OPERATIONS
AND EQUIPMENT \$ 218,070 **

**\$141,030 Supplemental Request (ARC Funds)

NARRATIVE

The Solid Waste Program for Alexander, Burke, Caldwell, and McDowell Counties is in its second year of operation. A majority of the original project's objectives have been met. Two weak points in the program, however, have been a deterrent in fully reaching the anticipated goal; these being the establishment of a rural collection system and closing all open dumps.

An inadequate estimation of the capabilities of the collection units and bulk containers to meet the need of the area has created a most urgent situation. One collection unit servicing two counties cannot do an adequate job for the following reasons:

1. A 1,000 mile per week travel is required to service containers twice per week. In mountainous terrain, travel distance is a most important factor and should be held to approximately 100 miles per day.
2. Both trucks are operating an average 60 hours per week. The system was designed to operate 44 hours per week allowing sufficient time for maintenance.
3. Containers are generally overflowing with twice per week pick-up service resulting in unsightly and unsanitary conditions at container sites. (See Appendix A)

Of the original 24 open dumps in the area covered by this program, only two remain active. These are located in eastern Burke and southern Caldwell Counties, and have not been closed for the following reasons:

1. A round-trip to the central landfill exceeds 40 miles. This mileage is excessive and it is not realistic to expect this area to transport their waste to the central landfill.
2. The area served by the two open dumps encompasses a population of 30,000 people. This area is well justified in establishing an additional

sanitary landfill in respect to population and hauling distance involved.

The supplemental request of funds as outlined in the attached budget will be utilized in purchasing two additional collection trucks and establishing an additional landfill to serve the present system. The additional trucks will be used to reduce hauling distance, reduce the time required for servicing containers, and provide the necessary time for additional collection at container sites generally over-loaded.

The additional landfill will provide for a complete system in the region giving all heavy populated areas a reasonable haul distance and a convenient disposal area.

No additional personnel is being requested in the supplement. Due to time frame of getting supplement grant funds approved, the two collection trucks and the fifth landfill site will not be operational until the next budget period; therefore, personnel will be budgeted in the next fiscal year's budget.

Based upon previous experience requested funds for site preparation, fencing, insurance, and equipment costs are realistic and necessary to meet the original project goals and objectives.

Considering the amount of funds already expended and hours of manpower put forth, it would appear to be a tragic mistake to ignore additional funding that is necessary to make the project successful.

Letters of endorsement from the four Boards of County Commissioners are contained in Appendix B of this request.

APPENDIX A

*SURVEY OF CONTAINER LOCATIONS IN BURKE COUNTY
October 9 - October 13, 1972

- I. Number of Locations - Monday - 10
Number of Locations - Tuesday - 15
Number of Locations - Thursday - 10
Number of Locations - Friday - 16
- II. Number of Containers - Monday - 35
Number of Containers - Tuesday - 44
Number of Containers - Thursday - 33
Number of Containers - Friday - 46
- III. Total Capacity of Containers - Monday and Thursday Routes - 140 cu. yds.
Total Capacity of Containers - Tuesday and Friday Routes - 176 cu. yds.
- IV. Total cu. yds. of Waste - Monday - 185 cu. yds.
Total cu. yds. of Waste - Tuesday - 229 cu. yds.
Total cu. yds. of Waste - Thursday - 117 cu. yds.
Total cu. yds. of Waste - Friday - 191 cu. yds.
- V. Total Hours of Collection - Monday - 5 hours
Total Hours of Collection - Tuesday - 9 hours
Total Hours of Collection - Thursday - 4 hours
Total Hours of Collection - Friday - 7 hours
- VI. Percent of Containers Overloaded - Monday - 71%
Percent of Containers Overloaded - Tuesday - 72%
Percent of Containers Overloaded - Thursday - 15%
Percent of Containers Overloaded - Friday - 39%

Summary for the Week

- VII. Total Number of Locations for the Week - 51
Total Number of Containers for the Week - 158
Total Capacity of Containers for the Week - 632 cu. yds.
Total cu. yds. of Waste Picked Up for the Week - 722 cu. yds.
Total Hours of Collection for the Week - 25 hours
Percent of Containers Overloaded for the Week - 51%

* Note: Truck serving Burke County also serves McDowell County.
Data for McDowell County is incomplete at this time.

APPENDIX B

CALDWELL COUNTY

L. NORMAN SHRONCE, COUNTY MANAGER

LENOIR, NORTH CAROLINA 28645

October 10, 1972

Mr. Max Johnson, Director
Regional Solid Waste Commission of
Eastern Appalachia
201 Green Street
Morganton, North Carolina

Dear Mr. Johnson:

This letter is to inform you of the endorsement of the Caldwell County Board of Commissioners on October 2, 1972 of the supplemental fifth landfill and collection trucks in all countys.

Commissioner Robert Kent made the motion seconded by Commissioner Alden Starnes to endorse this supplemental budget. The motion was unanimously approved.

If I may be of further assistance to you concerning this matter, please advise.

Thank you.

Sincerely yours,

L. Norman Shronce

LNS:lp

COMMISSIONERS

JOHN A. BLEYNAT, CHMN.
ALFRED W. HAMER, JR.
LEIGHTON W. HARBISON
JIMMY R. JACUMIN
JOSEPH A. MCGIMSEY, JR.

Burke County

P. O. BOX 219

MORGANTON, N. C. 28655

RICHARD M. PERKINS
COUNTY MANAGER

AREA 704 437-5721

October 6, 1972

Mr. Max Johnson, Director
Regional Solid Waste Commission
201 South Green Street
Morganton, N. C. 28655

Dear Mr. Johnson:

Enclosure: Action Taken.

This letter is to inform you that the Burke County Board of Commissioners, in a regular session on October 2, 1972, voted unanimously to support the development of a fifth landfill site to serve Burke and Caldwell Counties. Enclosed you will find a copy of the action taken by the Burke County Board of Commissioners.

If we may be of any further assistance, please feel free to call on us.

Yours truly,

Billy R. Truett,
Clerk to the Board

BOARD OF COUNTY COMMISSIONERS:
PIERCE BRADLEY JR., Chairman
PAUL RICHARDSON, Vice Chairman
BRYAN GEORGE
FATE A. MORGAN
O. D. ROWE, D.D.S.

ROBERT C. HUNTER
County Attorney
Tel. 652-2844

JACK H. HARMON
County Manager
JUDY A. WRIGHT
County Accountant

McDOWELL COUNTY

MARION, N.C. 28752

Telephone 652-7121

October 2, 1982

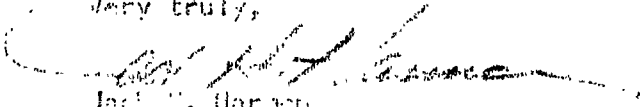
Mr. Roy E. Hanson
Regional Solid Waste Management Council
201 S. Green St.
Wilmington, N.C.

Dear Sir:

The McDowell County Board of Commissioners in formal session this date and minutes, the proposed budget for supplementing the rural collection system.

We trust that you will see our problem as we do and grant additional funds for bringing the rural collection system up to standards.

Very truly,


Jack H. Harmon
McDowell County Manager

M/c/p

<u>LOCAL</u>	<u>ARC</u>	<u>TOTAL</u>
\$58,765.00	\$165,125.00	\$223,890.00

<u>LOCAL</u>	<u>ARC</u>	<u>TOTAL</u>
\$58,765.00	\$165,125.00	\$223,890.00

1/

Diske
LK

January 19, 1973

Mr. Fred Maurer
Office Solid Waste Management
E.P.A.
1835 K. Street
Washington, D.C. 20460

Dear Mr. Maurer:

In reference to our recent telephone conversation concerning the use of compactor trucks in the Eastern Appalachian Region (Burke, Alexander, Caldwell, and McDowell Counties in N.C.), the reason for the large number of compactor trucks in comparison to the population served is because the small towns use compactor trucks because of haul distance, but use their truck for two or less days per week.

I trust this is the information you need.

Sincerely,

O. W. Strickland, Program Chief
Solid Waste Management Program
Solid Waste & Vector Control Section
Sanitary Engineering Division

OWS:clf

December 29, 1971

Mr. Randolph Hendricks
Planning Coordinator
State Planning Division
Department of Administration
Raleigh, North Carolina

Re: CE 72-0248
Solid Waste Management Program for
Eastern Appalachian
Regional Public Health Agency
Fargentown, Watauga County

Dear Mr. Hendricks:

This application expresses an intent to apply to the Appalachian Regional Commission for funds to finance the second year's operation of the Four-County Solid Waste Management Program for Eastern Appalachia which includes Alamogordo, Burke, Caldwell, and McDowell Counties. The total estimated cost shown in the notification is \$124,647, of which amount \$107,607 will be contributed by the participating counties.

Our staff have contacted the applicant and have been provided with a copy of the continuation proposal. We note from the proposed budget that the projected operational expense for the second year totals \$153,647 and that \$31,000 is also required for additional equipment. The justification for the needed equipment is the fact that the amount of solid waste to be handled at the Burke County and Caldwell County sanitary landfills was underestimated in the initial application, and that the new equipment will also serve as standby equipment for use at other sites.

In our opinion, the projected operational costs are realistic and a need exists for additional equipment. We, therefore, recommend favorable consideration of this application.

Very truly yours,

Marshall Staten, Director
Sanitary Engineering Division

cc: Mr. Gene Barnett
Mr. J. H. Paly
Mr. Rex Johnson
Mr. J. H. Hazy

DEPARTMENT OF ADMINISTRATION
State Planning Division
Clearinghouse and Information Center
Raleigh, North Carolina 27603

NOTIFICATION REFERRAL

ACTION REQUESTED

To: Name Mr. B. Gene Barrett, Planning Officer

Agency State Board of Health

Re: Clearinghouse Notification No. 1572 - 0248

The attached Notification to Clearinghouse of Intent to Apply for Assistance is referred to you for review and comment in accordance with Project Notification and Review System procedures established under Bureau of the Budget Circular No. A-95.

JAN 3 1972
RESPONSE REQUESTED BY _____

In each response, please refer to the Clearinghouse Notification No. shown above. If your agency does not wish to submit written comments, you may respond by telephone.

It is recommended that you contact the applicant directly if your agency needs additional information on the proposed application, or if there are any questions which may be resolved in this way.

Please reply to: Clearinghouse and Information Center

116 West Jones Street

Telephone 849-4375

CIC Form # 2

1/71

NOTIFICATION TO CLEARINGHOUSE OF INTENT TO APPLY FOR ASSISTANCE

Date December 10, 19 71

I. IDENTITY OF THE APPLICANT AGENCY, GOVERNMENTAL UNIT, ORGANIZATION, OR INDIVIDUAL:

Name Regional Public Health AgencyAddress 201 South Green StreetMorganton, North Carolina 28655Name of Chief Executive Officer Dr. Richard GrahamTitle of Chief Executive Officer Chairman

Individual who will be responsible for preparation of application or proposal:

Name Max D. JohnsonTitle DirectorAddress 201 South Green StreetMorganton, North Carolina 28655Telephone No. 433-1636II. A. AREA TO BE AFFECTED BY PROPOSED PROJECT (Municipality(s), Township(s), County(s), etc.): Alexander, Burke, Caldwell, and McDowell Counties

B. BENEFICIARIES (Clientele Group) OF THE PROPOSED PROJECT:

Residents of Alexander, Burke, Caldwell, and McDowell Counties.III. ANTICIPATED DATE FORMAL APPLICATION WILL BE SUBMITTED: February 1, 19 72
(Must be at least 60 days after submission of this form to the State Clearinghouse.)

IV. SOURCE OF GRANT-IN-AID ASSISTANCE TO BE REQUESTED:

A. Name of Federal Agency(s) Appalachian Regional Commission

B. Number(s) and Name(s) of Federal Grant-in-Aid Program(s)

202 Health DemonstrationC. Name of Private Foundation or Other Source County Commissioners

V. ESTIMATED COSTS AND SOURCES OF FUNDING:

A. State Agency Contribution:

In-Kind \$

Name of Agency

Cash \$

B. Local Governmental Unit Contribution:

In-Kind \$

Municipality or County Alexander, Burke, Caldwell, &Cash \$ 107,607

C. Other Non-Federal Contribution:

McDowell Counties

In-Kind \$

Source

Cash \$

D. Federal Grant-in-Aid Funds to be Requested.

\$ 77,040

Federal Loan Funds to be Requested.

\$

E. TOTAL ESTIMATED COSTS

\$ 184,647

F. Budget Period(s) for State Agency or Local Government Contribution:

FY 71% 42FY 72% 58FY 73% 100

(Complete reverse side)

- VI. A. If any State agency(s), Regional Planning Agency(s), or Local Government unit(s) have been contacted or have furnished information relative to the proposed project, list individual staff members contacted and agencies they represent.

Sid Usry, Sanitary Engineering Division, North Carolina State Board of Health

Raleigh, N. C. and Roland T. Stump, Regional Health Council, Morganton, N. C.

- B. List any other State or Local agencies which might have an interest in or be affected by the proposed project.

Dr. Glenn Deal, Chairman, Alexander County Commissioners

Mr. John Bleynat, Chairman, Burke County Commissioners

VII. DESCRIPTION OF THE PROPOSED PROJECT:

- A. Title Solid Waste Disposal Plan for Eastern Appalachia

- B. Narrative Description of the Proposed Project; Including Quantitative Information as to Size, Number of Units, etc.:

The Regional Solid Waste Disposal Project is designed to provide acceptable solid waste disposal practices without regard to municipal or county boundaries within the four county region. This plan will be accomplished by establishing and maintaining four (4) sanitary landfills, so located, as to provide reasonable haul distance to the population in the four county region. Compaction equipment has been selected to meet the need of the individual landfill. Dirt moving equipment has been selected to be self-transporting for the purpose of being utilized at any one of the four sites when needed.

Due to isolated areas and topography, a large number of people in the region are without collection service. A rural bulk container and collection system will be established and maintained for the areas where it is not economically feasible for private collection. Two collection vehicles will be used to service the containers throughout the four county region.

- VIII. Does the Federal Agency Administering the Program Under Which Funding will be Requested Require an Environmental Impact Statement? _____. (If Yes, attach a statement of the nature and extent of environmental impact anticipated.)

Attach additional sheets if necessary to present complete information, and mail completed form to:

Clearinghouse and Information Center
State Planning Division
116 West Jones Street
Raleigh, North Carolina 27603

DEC 14 1971

JACOB KOOMEN, M.D..M.P.H.
STATE HEALTH DIRECTOR
AND SECRETARY-TREASURER



W. BURNS JONES, JR., M.D..M.P.H.,
ASSISTANT STATE HEALTH DIRECTOR

James S. Raper, M.D.
President
Asheville

Lenox D. Baker, M.D.
Vice-President
Durham

Charles T. Barker, D.D.S.
New Bern

Ben W. Dawsey, D.V.M.
Gastonia

NORTH CAROLINA
STATE BOARD OF HEALTH

P. O. BOX 2091
RALEIGH, NORTH CAROLINA 27602

December 28, 1971

Joseph S. Hiatt, Jr., M.D.
Southern Pines

J. M. Lackey
Hiddenite

Paul F. Maness, M.D.
Burlington

Ernest A. Randleman, Jr., B.S.Ph.
Mount Airy

Jesse H. Meredith, M.D.
Winston-Salem

MEMORANDUM

TO: Mr. J. D. Faulkner

FROM: Sidney H. Usry *SHU*

SUBJECT: Clearing House Application 72-0248 Application to Appalachian
Regional Commission for Funding Second Year of Eastern
Appalachian Region.

This request for funding has been made in accordance with the requirements of the Appalachian Regional Commission for acquisition of operational funds for second year of the Eastern Appalachia Project at Morganton. This project comprises the four counties of McDowell, Burke, Caldwell, and Alexander.

The total operational expense has been determined to be a total of \$153,647 of which local contribution will amount to \$101,407 leaving a balance of \$52,240 that is being requested for the second year of operation from the Appalachian Regional Commission.

After one year of operation, the amount of solid waste being received at the Burke and Caldwell sanitary landfills were underestimated in the original application and additional equipment is needed. This equipment will also serve as standby equipment for use when needed at other sites. The application requests a total \$31,000 for the purchase of one new bulldozer and one reconditioned unit of size TD 9 or equal. The applicants share to be \$6,200, leaving a balance of \$24,800 to be provided by Appalachian Regional Commission. Of the total request of \$184,647, the applicant proposes to contribute \$107,607 leaving a balance of \$77,040 to be funded by the commission.

In our opinion, the request for additional funds for equipment is justifiable since the two counties involved are heavy industrialized areas, and the amounts of wastes from such facilities is rather difficult to estimate. The operational costs are in accordance with the original project estimates.

December 28, 1971

MEMORANDUM

TO: Mr. J. D. Faulkner

FROM: Sidney H. Usry

SUBJECT: Clearing House Application 72-0248 Application to Appalachian Regional Commission for Funding Second Year of Eastern Appalachian Region.

This request for funding has been made in accordance with the requirements of the Appalachian Regional Commission for acquisition of operational funds for second year of the Eastern Appalachia Project at Morganton. This project comprises the four counties of McDowell, Burke, Caldwell, and Alexander.

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In our opinion, the request for additional funds for equipment is justifiable since the two counties involved are heavy industrialized areas, and the amounts of wastes from such facilities is rather difficult to estimate. The operational costs are in accordance with the original project estimates.

Return to:
F. H. Ury

RECEIVED

DEC 23 1971

SOLID WASTE PROGRAM
CONTINUATION

SANITARY ENGINEERING
DIVISION

Submitted By: Regional Public Health Agency, Inc.

December 10, 1971

APPLICANT ORGANIZATION

GRANT NUMBER

Regional Public Health Agency, Inc.

04-H-000005-01-0

16. ESTIMATE OF PROJECT EXPENDITURES
FOR CURRENT BUDGET PERIOD

FROM

5-1-71

THROUGH

11-30-71

FUND EXPENDITURES	EXPENDITURES TO DATE	ESTIMATED EXPENDITURES FOR REMAINDER OF BUDGET PERIOD	TOTAL ESTIMATED EXPENDITURES
(1)	(2)	(3)	(4)
A. HSMHA GRANT FUNDS			
(1) PERSONNEL	\$ 8,359.38	\$ 15,090.41	\$ 23,449.79
(2) CONSULTANT SERVICES	-0-	1,517.00	1,517.00
(3) EQUIPMENT	170,317.94	62,482.05	232,799.99
(4) SUPPLIES	39.98	202.74	242.72
(5) TRAVEL	399.70	1,056.62	1,456.32
(6) OTHER EXPENSES	3,401.34	16,835.44	20,236.78
(7) SUB-TOTAL DIRECT COSTS	\$ 182,518.34	\$ 97,184.26	\$ 279,702.60
(8) INDIRECT COST ALLOWANCE (_____ % OF _____)			\$
(9) TOTAL ESTIMATED EXPENDITURES OF HSMHA GRANT FUNDS			\$ 279,702.60
B. SOURCES OF OTHER FUNDS			
(1) GRANTEE SUPPORT	\$ 70,591.34	\$ 95,296.06	\$ 165,887.40
(2) FEES	\$	\$	\$
C. TOTAL ESTIMATED PROJECT EXPENDITURES			445,590.00
17. USE OF HSMHA GRANT FUNDS THIS BUDGET PERIOD			
A. FUNDS AVAILABLE FOR EXPENDITURES			\$ 445,590.00
B. ESTIMATED EXPENDITURES (Amount on Line A-9 of Item 16)			445,590.00
C. ESTIMATED UNOBLIGATED BALANCE AT CLOSE OF BUDGET PERIOD (LINE A MINUS LINE B)			\$ -0-

REMARKS

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

ANNUAL INVENTION STATEMENT ON
PUBLIC HEALTH SERVICE GRANT OR AWARD

I hereby certify that, to the best of my knowledge and belief, all inventions are listed below which might possibly be construed in any manner to be Public Health Service grant or award supported or related and which were conceived and/or reduced to practice, or made the subject of patent application by persons engaged in the performance of work under Public Health Service grant or award

No. 04-H-000005-01-0, for the period 4/1/71 through 12/15/71

(Period dates should NOT extend beyond the date Statement is submitted to The Public Health Service)

(For General Research Support grants the Annual Invention Statement would include only those inventions related to a specific research project aided by such funds. If no inventions have been made under any Public Health Service grant or award, insert the word "None" under Title of Invention.)

NAME OF INVENTOR	TITLE OF INVENTION	DATE REPORTED TO PHS
	NONE	

Use Continuation Sheet if Necessary

Signature, in ink, is required in the space provided below, appropriate to the type of grant or award being supported:
SIGNATURE OF INSTITUTIONAL OFFICIAL REQUIRED IN ALL INSTANCES.

TYPE OF GRANT OR AWARD	SIGNATURES
1. FOR A RESEARCH GRANT	(PRINCIPAL INVESTIGATOR OR PROJECT DIRECTOR)
2. FOR A HEALTH SERVICES GRANT	(DIRECTOR)
3. FOR A TRAINING GRANT	(PROGRAM DIRECTOR)
4. FOR THE RESEARCH CAREER AWARD PROGRAM	(AWARDEE)
5. FOR A FELLOWSHIP AWARD	(a) (FELLOW) (b) (SPONSOR)
6. FOR A GENERAL RESEARCH SUPPORT GRANT (SEPARATE INVENTION STATEMENT FOR EACH IDENTIFIABLE RESEARCH PROJECT)	(PRINCIPAL INVESTIGATOR)

APPROVED:	SIGNATURE (INSTITUTION OFFICIAL RESPONSIBLE FOR PATENT MATTERS)	TITLE	DATE
	TYPE NAME Max D. Johnson	Director	12/10/71
	NAME OF INSTITUTION Regional Public Health Agency, Inc. SOLID WASTE PROGRAM	MAILING ADDRESS 201 S. Green Street Morganton, North Carolina 28655	

PROJECT TITLE: Solid Waste

1. <u>Personnel</u>	Annual Salary	Percent of Time	Total Project Cost
Director of Solid Waste 1@	\$12,600	100%	\$12,600
Director's Assistant 1@	8,060	100%	8,060
Landfill Equip. Operator 4@	6,760	100%	27,040
Scraper Operator 2@	6,760	100%	13,520
Truck Driver 2@	6,760	100%	13,520
Dozer Operator 2@	6,760	100%	13,520
Fringe Benefits 18%			15,887
TOTAL PERSONNEL			\$104,147
2. <u>Consultant Services</u>			
Consultant Service			500
TOTAL CONSULTANT SERVICES			500
3. <u>Supplies</u>			
Office Supplies			1,000
TOTAL SUPPLIES			1,000
4. <u>Travel</u>			
Project Director and Assistant			3,000
TOTAL TRAVEL			3,000
5. <u>Other Expenses</u>			
Site Preparation			4,000
Telephone and Utilities			2,000
Uniforms			2,000
Fuel and Maint. Landfill Equipment			18,000
Fuel and Maint. Packer Trucks			9,000
Fencing and Signs			1,000
Administrative Services			3,000
Tools and Mechanical Supplies			2,000
Site Preparation for Bulk Containers			2,000
Insurance on Equipment and License			2,000
TOTAL OTHER EXPENSES			45,000
6. Total Operating Cost			\$153,647
7. Less Anticipated Sources of Income			
Counties Cash Contribution			101,407
8. Total Project Operation Deficit			\$ 52,240

PROJECT TITLE: Solid Waste (Cont.)

9. Sources of Income for Operations and Equipment

		1970 Population	=			
Burke County	36.11%	60,364	=	\$ 38,857	Project	\$101,407
Alexander County	11.64%	19,466	=	12,525	Operation	
Caldwell County	33.92%	56,699	=	36,500	Cost	
McDowell County	18.33%	30,648	=	19,725		
	100.00%	167,177		\$107,607	Applicants Share Equipment	6,200 \$107,607

	<u>Total Cost</u>	<u>Applicant Share</u>	<u>"202" Cost</u>
10. <u>Equipment</u>			
1. 1 TD9 or Equal Dozer	\$23,000	\$ 4,600	\$18,400
2. 1 Used TD9 Dozer	8,000	1,600	6,400
TOTAL EQUIPMENT COST	<u>\$31,000</u>	<u>\$ 6,200</u>	<u>\$24,800</u>

11. Source of Applicants Share:

Burke County	-----	Cash contribution estimated at approximately \$.644 per person based upon 1970 census
Alexander County		
Caldwell County		
McDowell County		

CONTINUATION APPLICATION NARRATIVE
OPERATION AND EQUIPMENT GRANT
SOLID WASTE DISPOSAL PROJECT

I. Project Objectives

A major aim of the Solid Waste Project is to offer a Regional Solid Waste Management Program that will provide acceptable solid waste disposal practices within the four county region.

Specific objectives for the five-year project period include:

- (a) Establish and operate a system of sanitary landfills within the framework of a regionalized system through the Regional Solid Waste Commission.
- (b) Establish and operate a rural solid waste bulk container system through the Regional Solid Waste Commission that will serve areas having no collection service available due to topography, isolated or sparsely populated areas.
- (c) Eliminate all open and burning dumps operated by units and private concerns.

Specific objectives to be accomplished during budget period.

- (a) Continued development of routine daily operation of sanitary landfills.
- (b) Continued expansion of locations for bulk containers.
- (c) Establish a method or methods of financing project either through local tax funds or user fees.

The original project objectives remain valid.

II. Progress Report

- (a) Recruiting for the Solid Waste program is restricted to recruiting employees only. In view of the low salaries budgeted for equipment operators the program has been

successful in obtaining competent equipment operators.

- (b) Unanticipated obstacles to the Solid Waste program have been encountered in Burke and McDowell Counties. Dumping at landfill entrances after hours of operation has been a continuous problem in the two counties. The dumping of waste at the entrance gates has created an unsanitary appearance as well as a time taking task to clean it up. Two factors appear to be the apparent cause.

1. The lack of well organized private collection in the surrounding populated areas.

2. Lack of enforcement of existing laws.

Steps, however, are now being taken to correct the situation. Burke County Commissioners have authorized the County Manager to reform and upgrade the private collection practices in that county. McDowell and Burke Counties have hired full-time employees to patrol roadside dumping in those counties. It is felt that these steps, in time, will change the dumping situation.

Progress in meeting project objectives has been hindered due to the unusually heavy rainfall and early snow falls for the area. The average normal rainfall is ten inches for the four month period of August through November. Nineteen inches of rainfall were recorded for the four month period of time this year.

- (c) Due to the short period of time that the program has been in operation, a complete evaluation is not practical. However, a preliminary evaluation of the program does reveal:

Sanitary landfills have been established in Alexander, Burke, and McDowell Counties. The Caldwell County landfill

is being operated at a temporary site until a suitable site can be obtained. Difficulty has been encountered obtaining a site that is centrally located, but it is anticipated that a suitable site will be located within the next few months.

Volume of refuse at the Burke and Caldwell County landfills are far greater than was anticipated or anticipated equipment needs were underestimated in the initial grant application. It now appears that present equipment cannot maintain the landfill in a manner that is in keeping with the State Board of Health or the Regional Solid Waste Commission.

The largest and heaviest landfill equipment has been purchased for the landfill operation based on funds that were available. Experience gained since the beginning of the operation reveals the need for additional equipment based on the following:

1. Initially the plan of operation assumed that scraper equipment would be utilized between landfills for trenching and stock piling cover material. The program has not been able to accomplish the sharing of equipment because of the work load at the larger landfills. Landfill equipment at the Burke and Caldwell sites average 7 1/2 hours per day operating time out of the 8 hour day. It is felt that the addition of two bulldozers as requested in the attached budget will provide the reduction in the workload for

the scrapers and therefore permit the implementation of the original plan.

2. It has also been found to be expedient to utilize a bulldozer in the daily operation along with the scraper in keeping fill dykes leveled and rough grades established for new trenches.
3. The initial grant application overlooked a most important aspect of a landfill operation, the aspect of providing stand by equipment in the event of a breakdown of the regular landfill equipment.

Normally a private contractor could be utilized in the event of a breakdown but this type of arrangement has not been effective in the four county region. Private contractors in the region have not been available on short notice thus far. The additional equipment requested will insure stand by equipment availability in the event of a breakdown.

Public bids for container collection system equipment have been awarded. It is anticipated that equipment will be delivered in February of 1972 at which time that phase of the program will be put into operation.

The objective to eliminate all open and burning dumps in the four county region has met with considerable success. Fourteen of the twenty four identified open dumps in the region have been eliminated with the remainder to be eliminated in the near future. The initiation of the rural collection system and the enforcement of the new State

solid waste disposal regulations should bring about the closure of the dumps still in existence.

- (d) Local support for the Solid Waste Program has been excellent. The Regional Solid Waste Commission has accepted it's responsibility for the project and commission members have contributed numerous hours in compiling equipment specifications, rules and regulations governing landfill operations and assisting the project director to overcome problems that he has encountered.

The grant application for the establishment of the Solid Waste Program did not anticipate local government assuming complete support of the program after the first year. Local officials were of the understanding that they would receive financial support for three years. The understanding of support has created a situation in which local government has not made adequate provisions to pick up deficit spending at this time. A one year continuation of the program could provide the necessary time for local government to assume the total cost. The Regional Solid Waste Commission will explore with the individual counties alternatives for financing the continuation of the project.

Alternate methods of financing appear feasible to the counties at this time. One method would be to establish a fee system for vehicles entering landfill. Another method would be to establish a tax through the county tax base earmarked for solid waste disposal.

Whatever method of financing is decided upon by the counties, a fact remains that adequate time must be made available. If the fee system is established, it would require several months to establish rates and set up bookkeeping and billing procedures. A time period would also be required to collect sufficient funds to meet operational expenses. If tax funds were to be utilized, it would be July of 1972 before budgets could be established and January of 1973 before funds would be available through tax collection.

III. Method of Procedure

The original project method of procedure has remained unchanged, as have the objectives.

The method of procedure for developing the Solid Waste Program was to establish a Regional Solid Waste Commission. The Commission members appointed by the various county commissioners have established policies and procedures for the program. The commission through its program director is responsible for establishing four sanitary landfills, utilizing acceptable engineering practices and procedures throughout the region, therefore providing an acceptable means of disposal for all waste generated within the region. The program director is also responsible for developing a collection system for area residents having no collection service available to them by locating bulk containers and a collection system to serve those areas.

The procedure followed to eliminate all open and burning dumps is to be accomplished through providing the sanitary landfills and the bulk container collection system.

The program has attempted and will continue to work closely with local health department and State agencies in meeting all requirements and guidelines of those departments and agencies.

Burke

SOLID WASTE DISPOSAL PLAN

for

EASTERN APPALACHIA

RECEIVED

DEC. 23 1971

**SANITARY ENGINEERING
DIVISION**

Submitted By

the

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA, INC.

JR

March 1, 1971

SOLID WASTE DISPOSAL PLAN

for

EASTERN APPALACHIA

Submitted By

the

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA, INC.

March 1, 1971



STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION
RALEIGH 27602

ROBERT W. SCOTT
GOVERNOR

W. L. TURNER
DIRECTOR

February 24, 1971

Mr. Max D. Johnson
Director of Solid Waste Program
Regional Health Council of Eastern Appalachia
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Johnson:

We have received a copy of your Solid Waste Disposal Plan for Eastern Appalachia, and after reviewing and discussing with knowledgeable personnel in certain State agencies, we are pleased to approve and hereby recommend same to the Department of Health, Education and Welfare.

Sincerely,

A handwritten signature in cursive script that reads "W. L. Turner".

W. L. Turner

JACOB KOOMEN, M.D.,M.P.H.
STATE HEALTH DIRECTOR
AND SECRETARY-TREASURER



W. BURNS JONES, JR., M.D.,M.P.H.
ASSISTANT STATE HEALTH DIRECTOR

NORTH CAROLINA
STATE BOARD OF HEALTH

P. O. BOX 2091
RALEIGH, NORTH CAROLINA 27602

February 26, 1971

James S. Raper, M.D.
President
Asheville
Max D. Baker, M.D.
Vice-President
Durham
Charles T. Barker, D.D.S.
New Bern
Ben W. Dawsey, D.V.M.
Gastonia

Joseph S. Hiatt, Jr., M.D.
Southern Pines
J. M. Lackey
Hiddenite
Paul F. Maness, M.D.
Burlington
Ernest A. Randleman, Jr., B.S.Ph.
Mount Airy
Jesse H. Meredith, M.D.
Winston-Salem

Mr. Max D. Johnson, Director
Regional Solid Waste Commission
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Johnson:

I appreciate the opportunity to review the "Solid Waste Disposal Plan for Eastern Appalachia." The Plan has been reviewed and meets the approval of this agency in regard to the requirements that have been established for solid waste disposal.

Very truly yours,

A handwritten signature in cursive script that reads "Sidney H. Usry".

Sidney H. Usry, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

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1. State: North Carolina	TO BE COMPLETED BY ARC & HSMHA Date Rec'd. by ARC _____ ARC Number _____ Date Rec'd. by HSMHA _____ HSMHA Number _____																											
2. Project Title: Solid Waste Disposal Plan for Eastern Appalachia	Date Rec'd. by HSMHA _____ HSMHA Number _____																											
3. Applicant Organization: (Legal Name, Address-Street, City, State & Zip) Regional Health Council of Eastern Appalachia, Inc. 201 South Green Street Morganton, North Carolina 28655	6. Type Stage of Application <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Planning <input type="checkbox"/> Renewal <input checked="" type="checkbox"/> Operations & (Equipment) <input type="checkbox"/> Continuation <input type="checkbox"/> Revision <input type="checkbox"/> Construction																											
4. Organization: <input type="checkbox"/> Public <input checked="" type="checkbox"/> Private Non-profit	7. Project Period Requested From <u>July 1, 1970</u> To <u>July 30, 1975</u>																											
5. Project Director: (Name, Title, Address Zip) Max D. Johnson, Director Regional Solid Waste Commission 201 S. Green St. Morganton, North Carolina 28655 Telephone: Area Code and Number 704-433-1636	8. Budget Period, this application Dates: From <u>July 1, 1970</u> To <u>June 30, 1971</u>																											
10. Indirect Costs <input checked="" type="checkbox"/> Not Requested Requested: Under Negotiation <input type="checkbox"/> Requested: Rate _____ % of _____ Approved by _____ Period _____	9. Cost for This Budget Period <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Operations</th> <th style="text-align: right; border-bottom: 1px solid black;">Amount</th> <th style="text-align: right; border-bottom: 1px solid black;">Percent</th> </tr> </thead> <tbody> <tr> <td>Total Cost</td> <td style="text-align: right;">\$189,590</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Other Support</td> <td style="text-align: right;">142,695</td> <td style="text-align: right;">75%</td> </tr> <tr> <td>202 Grant</td> <td style="text-align: right;">46,895</td> <td style="text-align: right;">25%</td> </tr> <tr> <td colspan="3" style="padding-top: 10px;">Construction, Equipment, or Planning</td> </tr> <tr> <td>Total Cost</td> <td style="text-align: right;">291,000</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Applicant Share</td> <td style="text-align: right;">58,200</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Other Support</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0%</td> </tr> <tr> <td>202 Grant</td> <td style="text-align: right;">232,800</td> <td style="text-align: right;">80%</td> </tr> </tbody> </table>	Operations	Amount	Percent	Total Cost	\$189,590	100%	Other Support	142,695	75%	202 Grant	46,895	25%	Construction, Equipment, or Planning			Total Cost	291,000	100%	Applicant Share	58,200	20%	Other Support	0	0%	202 Grant	232,800	80%
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11. Where will Project be conducted? (Specify counties and/or cities) Alexander, Burke, Caldwell and McDowell Counties Congressional Districts 10 and 11	13. Financial Officer: (Name, Title, Address, Zip) Mrs. Fannie Bertalot, Comptroller 201 South Green Street Morganton, North Carolina 28655 Telephone: Area Code & Number 704-433-1636																											
12. Responsible Officer: (Name, Title, Address, Zip) R. T. Stump Administrator Regional Health Council of Eastern Appalachia 201 S. Green St. Morganton, North Carolina 28655 Telephone: Area Code & Number 704-433-1636	13. Financial Officer: (Name, Title, Address, Zip) Mrs. Fannie Bertalot, Comptroller 201 South Green Street Morganton, North Carolina 28655 Telephone: Area Code & Number 704-433-1636																											

14. AGREEMENT: The undersigned accept, as to any grant awarded, the obligation to apply those funds in accordance with applicable Federal laws, including Section 202, 302(e), and 402 of the Appalachian Regional Development Act of 1965, as amended, and to comply with grants policies established by the Health Services and Mental Health Administration of the Department of Health, Education, and Welfare and pertinent to this program in effect at the time of the award, and with any special conditions that may be a part of the award. The undersigned also certify that personnel associated with the project have no commitments or obligations, including those with respect to inventions, inconsistent with DHEW Regulations (42 C.F.R. Part 8). The undersigned further agree to comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the Regulations pursuant thereto, and state that the formally filed or attached Assurance of Compliance with such Regulations (Form HEW 441) applies to this project.

Responsible Officer: Roland T. Stump February 18, 1971
(Signature) (Date)

Project Director: Marjorie J. Harrison February 18, 1971
(Signature) (Date)

Reg. Health Council Officer: [Signature] February 18, 1971
(Signature) (Date)

State APPROVAL

This application has been evaluated and approved as meeting the requirements for assistance under the Appalachian Regional Development Act of 1965, as amended.

Appalachian State Rep.: _____
(Name) (Title)

(Signature) (Date)

PROJECT TITLE: Solid Waste

APPLICANT ORGANIZATION: Regional Health Council of Eastern Appalachia

BUDGET ITEM	Annual Salary	Percent of Time	Total Project Cost
1. <u>Personnel</u>			
Director of Solid Waste	\$ 12,000	100%	\$ 12,000
Director's Assistant @	7,200	100%	7,000
Landfill Equipment Operator 4 @	6,000	100%	24,000
Scraper Operators 2 @	6,000	100%	12,000
Heavy Duty Truck Driver 2 @	6,000	100%	12,000
FRINGE BENEFITS 15%			10,090
TOTAL PERSONNEL			\$ 77,290
2. <u>Consultant Services</u>			
Sites Selection and establishment of standard operating procedures			5,000
TOTAL CONSULTANT SERVICES			\$ 5,000
3. <u>Supplies</u>			
Office Supplies			500
Audio-Visual Supplies			300
TOTAL SUPPLIES			\$ 800
4. <u>Travel</u>			
Project Director (per existing local policies)			1,800
Training of Personnel			3,000
TOTAL TRAVEL			\$ 4,800

5. Other Expenses

Site preparation	12,000
Sanitary Facilities	5,000
Telephone and Utilities	2,000
Uniforms 10 Employees	1,200
Fuel and Repairs Landfill Equipment	14,000
Fuel and Repair (Packer Trucks)	12,000
Fencing and Signs	9,000
Land 70 Acres @ 500 per acre	35,000 *
Administrative Services	2,000
Site preparation for bulk containers	9,000
Tools and mechanics' supplies	500

TOTAL OTHER EXPENSES \$101,700

6. Total Operating Cost \$189,590

7. Less: Anticipated Sources of Income

Counties Cash Contribution	107,695	
		\$142,695
*Contributed by Counties	35,000	

8. Total Project Operation Deficit \$ 46,895

9. Sources of Income for Operations
and Equipment

Burke County	Cash contribution
Alexander County	estimated at approximately
Caldwell County	99.233 cents/person based
McDowell County	upon 1970 census

	1970 Population		
Burke County	60,364	=	\$ 59,901.07
Alexander County	19,466	=	19,316.76
Caldwell County	56,699	=	56,264.18
McDowell County	30,648	=	30,412.99
	167,177	=	\$165,895.00
			Project 107,695
			Operation
			Deficit
			Applicants 58,200
			Share Equip-
			ment \$165,895

10. Equipment

	<u>Total Cost</u>	<u>Applicant Share</u>	<u>"202 Cost</u>
1. 2 High Lift Loader (AC HD 12 or equal)	\$ 79,000	15,800	63,200
2. 2 Scrapers	65,000	13,000	52,000
3. 2 High Lift Loader (AC HD 7 or equal)	58,200	11,640	46,560
4. 2 24-25 cu. yd. Packer Truck	50,000	10,000	40,000
5. 4 Sheds and Office	16,000	3,200	12,800
6. 1 1/2 Ton pick-up truck	2,800	560	2,240
7. 80 4 yd. bulk containers	20,000	4,000	16,000
TOTAL EQUIPMENT COST	<u>\$ 291,000</u>	<u>\$58,200</u>	<u>\$232,800</u>

11. Source of Applicant's Share:

Burke County
Alexander County
Caldwell County
McDowell County

See #9 (above) Source of Income for
Operations and Equipment

SHORT SUMMARY OF PROJECT

PROJECT TITLE

The Regional Solid Waste Disposal Project

SUMMARY STATEMENT (Not to exceed 200 words)

The Regional Solid Waste Disposal Project is designed to provide acceptable solid waste disposal practices without regard to municipal or county boundaries within the four county region. This plan will be accomplished by establishing and maintaining four (4) sanitary landfills, so located, as to provide reasonable haul distance to the population in the four county region. Compaction equipment has been selected to meet the need of the individual landfill. Dirt moving equipment has been selected to be self-transporting for the purpose of being utilized at any one of the four sites when needed.

Due to isolated areas and topography, a large number of people in the region are without collection service. A rural bulk container and collection system will be established and maintained for the areas where it is not economically feasible for private collection. Two collection vehicles will be used to service the containers throughout the four county region.

NAME OF PROJECT DIRECTOR

Max D. Johnson, Director
Regional Solid Waste Disposal Project
Regional Health Council of Eastern
Appalachia
201 South Green Street
Morganton, North Carolina 28655

APPLICANT ORGANIZATION (Name and address, including Zip Code)

Regional Health Council of Eastern Appalachia
201 South Green Street
Morganton, North Carolina 28655

PROJECT OBJECTIVES

- A. Objectives to be achieved during project period
 - 1. Establish and operate a system of sanitary landfills within the framework of a regionalized system through the Regional Solid Waste Commission.
 - 2. Establish and operate a rural solid waste bulk container system through the Regional Solid Waste Commission that will serve areas having no collection service available due to topography, isolated or sparcely populated areas.
 - 3. Eliminate all open and burning dumps operated by governmental units and private concerns.
- B. Objectives to be achieved during budget period
 - 1. Formulate a Regional Solid Waste Commission
 - 2. Establish a sanitary landfill in Alexander, Burke, Caldwell, and McDowell Counties.
 - 3. Establish a container collection system in the four county region.

PROJECT NEED AND BACKGROUND

A solid waste survey completed by the State Board of Health in 1968 revealed that 124,064 tons of solid waste is being collected annually by municipalities and private collection firms in Alexander, Burke, Caldwell, and McDowell Counties. This amount of refuse is being placed at twenty-four land disposal sites. All of these sites with the exception of one are operated as open dumps. It is estimated that there are 61,394 people living in the four county region, producing an estimated 22,447 tons of refuse annually with no disposal service. Part of this tonage is being burned and part is being buried on the farm, but a large part is cluttering farms, woodlands, streams and highways.

The survey reveals a need for an acceptable disposal of all solid waste generated within the four county region. The survey also reveals a need for the collection of solid waste produced by residents not presently served by either public or private collection.

METHOD OF PROCEDURE

For a System of Sanitary Landfills

METHOD OF PROCEDURE FOR A SYSTEM OF SANITARY LANDFILLS

The Regional Solid Waste Commission will establish and operate a system of Sanitary Landfills within the framework of a regionalized system. The regionalized approach will be accomplished through the use of personnel and equipment that are not restricted to county boundaries as will be described later.

Establishment and operation of a system of sanitary landfills for Alexander, Burke, Caldwell, and McDowell Counties will be accomplished by locating a landfill near the county seat of each county, and hence the Solid Waste Generation Center, lay near the county seat of each county. Secondly, the county seat appears to form the highway transportation hub of the respective counties.

The land area to be utilized for each sanitary landfill will be acquired by the County Board of Commissioners of their respective counties. The land will be made available to the regional commission through the respective boards of county commissioners. Site selection and utilization of landfills will be determined utilizing the following steps: 1

1. Land Requirements

Land requirements will be based on Dr. Sweeten's Report. (See Appendix D, page D-2-18, D-2-26).

2. Characteristics of Surrounding Areas

Site area will not be in conflict with established, or proposed, land uses. The site area must be accessible to collection vehicles, giving consideration to steep grades, and other factors such as road quality and maintainability.

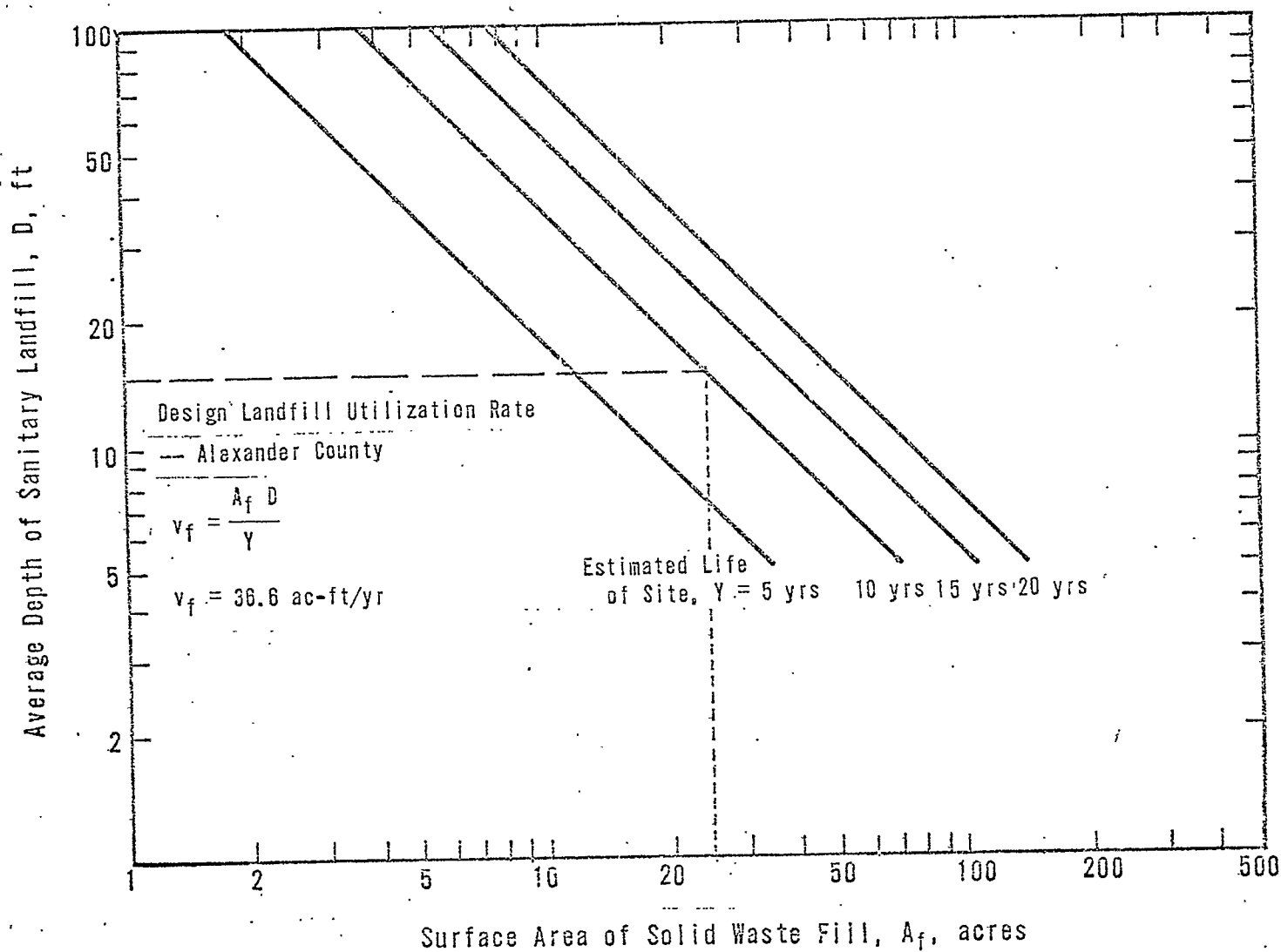


Figure 1. Relationship between design landfill depth (solid waste and cover material), design life of site, and surface area of solid waste fill for the Alexander County sanitary landfill, four — landfill regional disposal system.

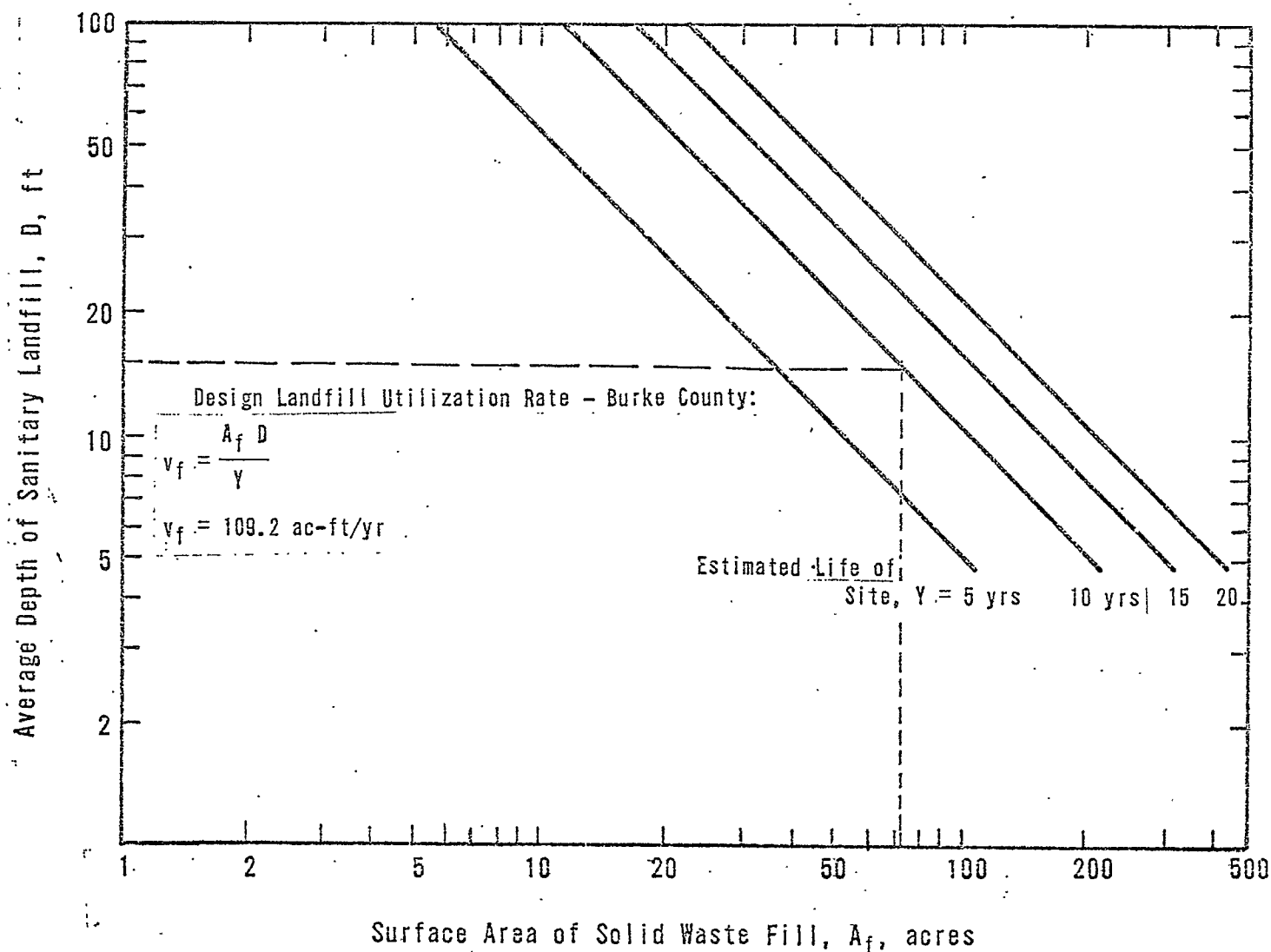


Figure 2. Relationship between design landfill depth (solid waste & cover material), design life of site, and surface area of solid waste fill for the Burke County sanitary landfill, four - landfill regional disposal system.

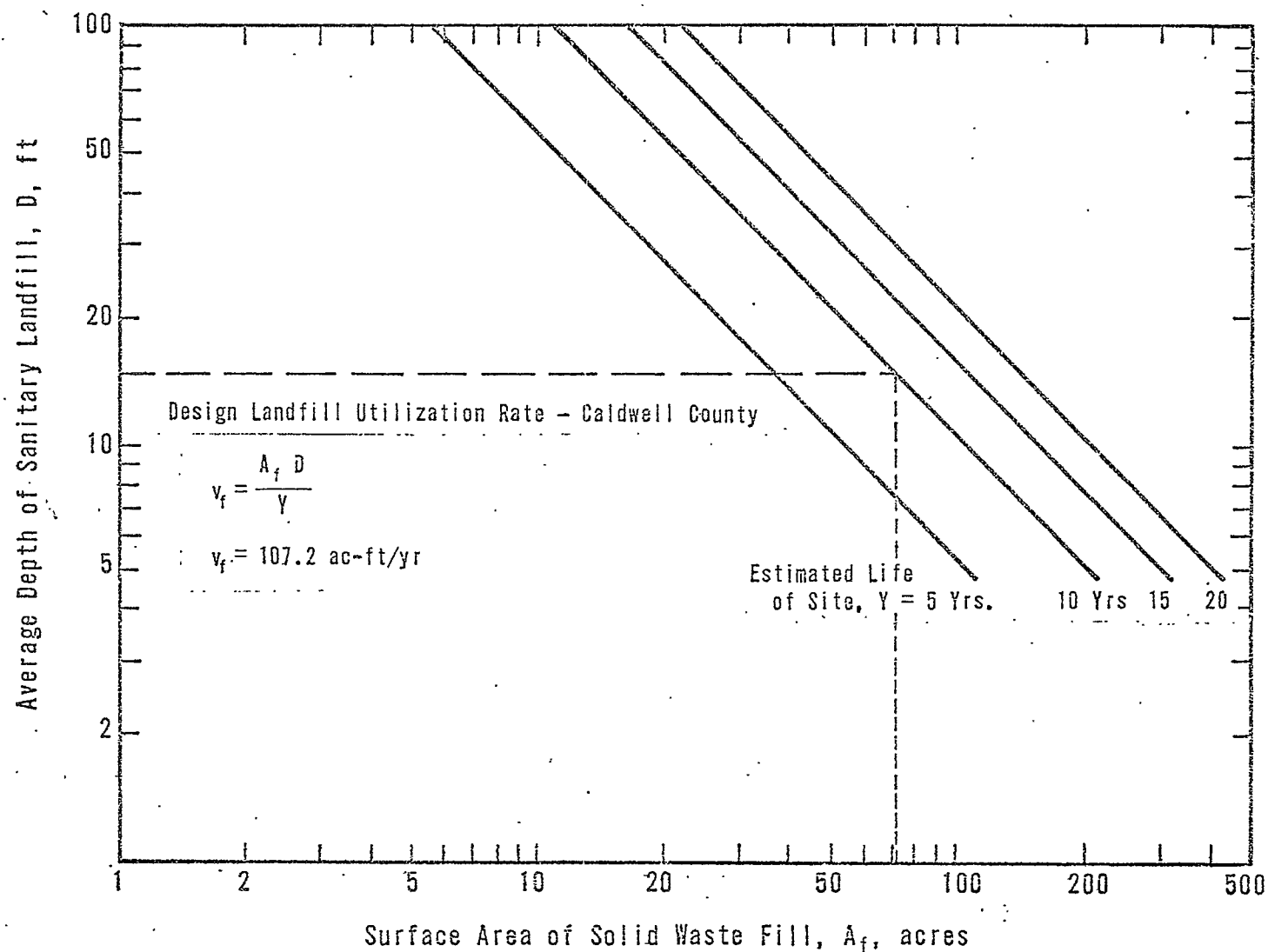


Figure 3. Relationship between design landfill depth (solid waste and cover maaterial), design life of site, and surface area of solid waste fill for the Caldwell County sanitary landfill, four — landfill regional disposal system.

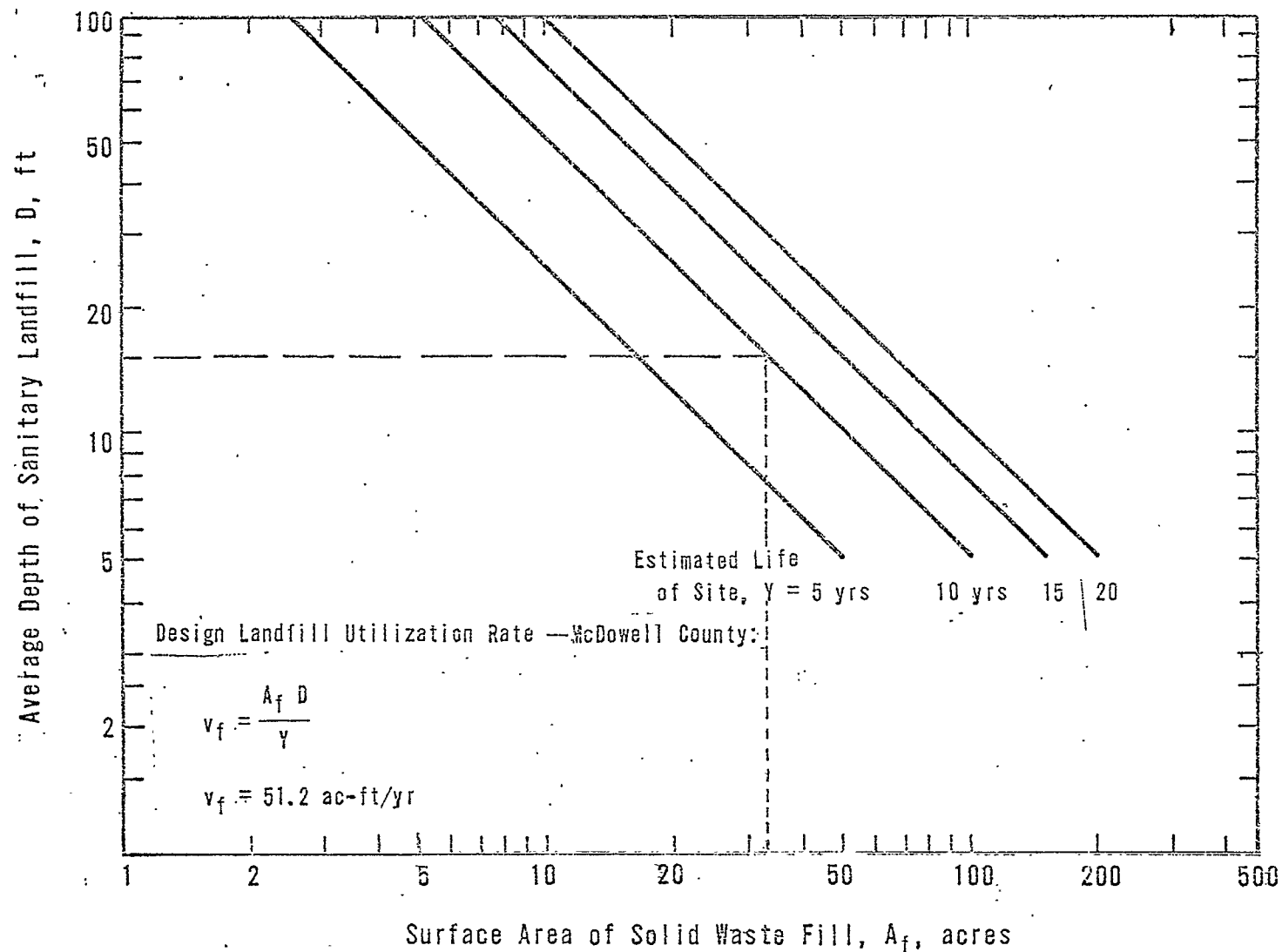


Figure 4. Relationship between design landfill depth (solid waste and cover material), design life of site, and surface area of solid waste fill for the McDowell County sanitary landfill, four — landfill regional disposal system.

3. Cover Material

Cover material must be both readily accessible and suitable for sanitary landfill operation. Amount and suitability will be determined through test boring and soil maps.

4. Geology

Consideration will be made through geological maps and the state geologist, to prevent ground water pollution. This consideration will be incorporated into the design and utilization of the landfill.

5. Topography

Topography of the area will be a major factor in the landfill design, consideration given to steepness of slopes, drainage problems, and flooding of low areas.

6. Design and General Consideration for Landfill Operation

A topographic map of the landfill site will be used to show existing characteristics of the area and will be used to locate fill and barrow areas, to locate utilities and facilities, and to design the final contours of the completed landfills.

Site improvements will be made through clearing trees, shrubs and constructing roads connecting the landfill sites to the existing road system. This improvement will be made by negotiation with a private contractor or contractors or the use of city, county and state equipment and operators.

7. Utilities and Facilities

For the protection of equipment, an enclosed shed or garage will be erected at each landfill site. The shed or garage will be of adequate size to house the pieces of compaction equipment for repair and for overnight lockup. The shed or garage will contain the proper tools and equipment for performing routine preventive maintenance recommended by the equipment manufacturer. This shed or garage will also contain a small office for filing equipment records and protection of the site operator from the elements. The office will be heated with a small portable electric heater.

A telephone will be installed for normal communications and for use in the event of emergency or accident. Toilet facilities will consist of a pit privy built to the specifications of the North Carolina State Board of Health.

Water will be made available at the site for drinking, fire, and dust control and cleaning of equipment. Water is to be made available through public or private water supplies. If a convenient water supply is not available, a well will be constructed and protected to the specifications of the North Carolina State Board of Health.

Sheds or garages at the Alexander, Caldwell, and McDowell County sites will be similar, except for the following: the Burke County site will have an office in a mobile office trailer; that mobile office will serve as the central office for the project director.

The mobile office will have standard toilet facilities and be connected to an approved sanitary sewer or an approved septic tank system. Water furnishing the mobile office will meet acceptable bacteriological standards for drinking water.

Permanent fencing and gates will be erected at the landfill entrance. Gates will be provided with locks to exclude vehicles from the landfill area during closing hours.

Temporary fencing will be used for the control of blowing litter. The temporary fence will be located perpendicular to prevailing winds and down wind from the area being filled.

8. Plan of Operation

The method of operation will be determined for each site through the use of acceptable engineering planning. The Solid Waste Section of the North Carolina State Board of Health has agreed to perform the engineering plan and act as consultants to the Commission. In return for that service, the Commission will make the operation available for observation and study to the North Carolina State Board of Health.

9. Operation

Personnel: All sanitary landfills will be under constant and competent supervision during operating hours. Daily supervision will be provided through a compaction equipment operator at the Alexander County site, one at the Burke County site, one at the Caldwell County site, and one at the McDowell County site.

Equipment: The recommended equipment required for operating the sanitary landfills are given in Table No. 1.

Mandatory Operating Requirements: Solid waste will be covered with at least six inches of compacted earth at the end of each working day.

There will be an absence of visible blowing refuse at the end of each work day.

There will be no burning of refuse at the sanitary landfill site.

TABLE NO. 1
SANITARY LANDFILL EQUIPMENT

Sanitary Landfill No. 1 - McDowell County

Equipment: One (1) high-lift loader with bucket, cab and heater.

Structure: Shed for equipment and office space.

Sanitary Landfill No.2 - Burke County

Equipment: One (1) Specialized Solid Waste Compactor (specialized equipment is recommended at this site due to the volume and type of industrial waste.) One (1) self-loading Pay Scraper (11 Cubic Yards) (Sanitary Landfill No. 2 will be home base for this self-loading pay-scraper.)

Structure: Office for Project Director, shed for equipment and office space.

Sanitary Landfill No. 3 - Caldwell County

Equipment: One (1) Specialized Solid Waste Compactor (specialized equipment is recommended at this site due to the volume and type of industrial waste.) One (1) self-loading Pay Scraper (11 cubic yards) (Sanitary landfill No. 3 will be home base for this self-loading pay-scraper.)

Structure: Shed for equipment and office space.

Sanitary Landfill No. 4 - Alexander County

Equipment: One (1) high-lift loader with bucket, cab and heater.

Structure: Shed for equipment and office space.

METHOD OF PROCEDURE FOR DEVELOPING
A RURAL BULK CONTAINER SYSTEM

The Regional Solid Waste Commission will establish and operate a limited rural bulk container system that will serve areas having no collection service available due to topography, isolated or sparcely populated areas.

The establishment and operation of a limited rural bulk container system for Alexander, Burke, Caldwell and McDowell Counties will be accomplished by locating four (4) yard bulk containers at designated locations throughout the four county area.

The designated locations will be acquired from the State Highway Commission, Right-of-Way Department. The sites will be prepared for pull off and placing of container by the State Highway Commission or a private contractor. Site preparations is not to exceed the sum of \$9,000.

Site selection and implementating the container system will be determined utilizing the following steps:

1. Location Requirements

Containers are to be located only in areas not served by authorized and established collectors.

Containers will be located at isolated and sparcely populated areas, where it is not edonomically feasible to establish rural collection by private collectors, but where waste collection is needed.

Due to large numbers of recreation facilities, and national forest lands, containers will be placed to serve these recreational areas.

2. Characteristics of Surrounding Areas

Site location must be accessible to collection vehicles, giving consideration to steep grades, road quality and weight limits, bridge width, height, and weight limits.

3. Design and General Consideration for Bulk Container Systems

An area map of the four county region will be used to show container locations, routes of collection and landfill locations.

4. Plan of Operation for Bulk Container System

The plan of operation which will include container location and routes for collection vehicles will be determined through the use of an acceptable consultant firm and the Solid Waste Section of the North Carolina State Board of Health.

5. Operation

All bulk containers will be serviced by a compactor vehicle at least two (2) times per week on a regularly scheduled basis. Container routes will be so planned that Monday and Thursday routes will be the same. Tuesday and Friday routes will be the same. Wednesday will be used for servicing the vehicle and picking up bulky items, such as old refrigerators, stoves, etc. that may have been placed at a container site.

Job Description - Heavy Duty Truck Driver (2)

Working hours will normally be 40 hours per week.

The heavy duty truck driver will be responsible to see that the bulk containers are emptied on a routine basis as designated in the plan of operation and routes of collection.

The heavy duty truck driver will be responsible for container sites being neat and orderly after each service visit.

The heavy duty truck driver will be responsible for the maintenance of the equipment under his care as prescribed by good operating procedures and by the Equipment Manufacture Maintenance Guide and additions as may be prescribed by the Director, Regional Solid Waste Commission.

Equipment

The recommended equipment required for operating the collection system is given in Table No. 2. Equipment recommendations are based on figures shown in Appendix C.

10. Operating Procedures

Operating Procedures as outlined above will be followed in accordance with the general plan of operation to be provided by the consultant firm selected to recommend container site selection and container routes.

TABLE NO. 2

CONTAINER COLLECTION SYSTEM

Equipment: Two (2) 25-cubic yard dumpmaster trucks.

Two hundred and twenty-five (225) 4-yard bulk
container.

METHOD OF PROCEDURE FOR ELIMINATING ALL EXISTING OPEN DUMPS

The procedure for eliminating all existing open dumps will be carried out utilizing the following procedure:

1. Provide an acceptable disposal for all solid waste generated within the four county region as outlined in "Methods of Procedure for a System of Sanitary Landfills."
2. The Regional Solid Waste Commission shall, using recommended procedures, require each of the existing open dumps in the four-county region be closed through the use of uniform regulations to be adopted in each of the four counties. The uniform regulations will provide standards for on-site storage, collection, transportation and disposal of solid waste. The regulation shall be in compliance with those adopted by the North Carolina State Board of Health. Standards for the closing of dumps and landfills will be included under disposal.

OBJECTIVES TO BE ACCOMPLISHED DURING BUDGET PERIOD

METHOD OF PROCEDURE FOR DEVELOPING A REGIONAL SOLID WASTE COMMISSION

A Regional Solid Waste Commission has been developed through the appointment of a ten member commission to represent Alexander, Burke, Caldwell and McDowell Counties. Two members were selected by the county commissioners of Burke County, two members by the county commissioners of Caldwell County, one member by the county commissioners of Alexander County, and one member by the county commissioners of McDowell County. One member from each county was selected by the incorporated municipalities in each county.

Formulation and adoption of Bylaws have been approved by the county commissioners of the four counties. Appendix A.

The employment of a project director has been accomplished through interviewing and evaluating applicants. The evaluation was made by the Regional Solid Waste Commission using guidelines and criteria shown in Appendix B.

METHOD OF PROCEDURE FOR OPENING SANITARY LANDFILLS

The following sub-objectives, when initiated, will lead to the establishment of the four landfills.

1. Preparation of landfill equipment specifications and advertise for bids. The recommended equipment requirements for operating the sanitary landfills are given in table No. 1.

Equipment specifications will be prepared by the Regional Solid Waste Commission for competitive bidding. Bids will be advertised, opened and accepted according to rules and regulations described by law.

2. Secure Landfill Sites:

Landfill sites will be secured by the county board of commissioners in their respective counties. Site selection will be approved by the commission working in conjunction with the Solid Waste and Vector Control Section, Sanitary Engineering Division, North Carolina State Board of Health.

3. Develop Operation Plans for Landfills:

Operation plans will be developed for each landfill by the Solid Waste and Vector Control Section, Sanitary Engineering Division, North Carolina State Board of Health.

4. Employ Personnel for Landfill Operations:

The Director, Regional Solid Waste Commission, will advertise for and accept applications for landfill personnel. Landfill personnel will be selected according to experience and ability to carry out directions and other normal personnel hiring procedures.

5. Site Preparation and Opening of Landfills:

Site preparation will consist of clearing the site of trees and shrubs, excavating and grading required in the operation plan, erection of fencing, signs, sanitary facilities, sheds and offices, and construction of roads into the sites.

After all site preparations are completed, and upon delivery of equipment and employment of personnel, landfills will be open to the public.

METHOD OF PROCEDURE FOR STARTING CONTAINER COLLECTION SYSTEM

The bulk container system will be established upon completion of the following sub-objectives:

1. Establish truck routes and site selection for containers:

Truck routes and site selection for containers will be completed through the utilization of consultants to the commission. The consultants will designate truck routes and container sites as outlined in "Methods of Procedure for Establishing A Limited Rural Bulk Container System."

2. Prepare Collection Equipment Specifications and Advertise for Bids; The recommended equipment required for operating the collection system is given in Appendix C. The initial number of containers will be eighty (80) instead of the recommended two hundred and twenty-five (225) due to a restricted budget. Containers will be added to bring this total to two hundred and twenty-five as funds become available.

Collection equipment specifications will be prepared by the commission for competitive bidding. Bids will be advertised, opened and accepted according to rules and regulations described by law.

3. Employ Collection Personnel:

The Director, Regional Solid Waste Commission, will advertise for and accept applications for collection personnel. Collection personnel will be selected according to experience and ability to carry out directions and other normal personnel procedures.

4. Container Site Preparation and Placing of Containers:

Site preparation will consist of grading and stabilizing container site area. The site will be of sufficient size to accomodate the container and the vehicles using and servicing the container, plus room for an additional container.

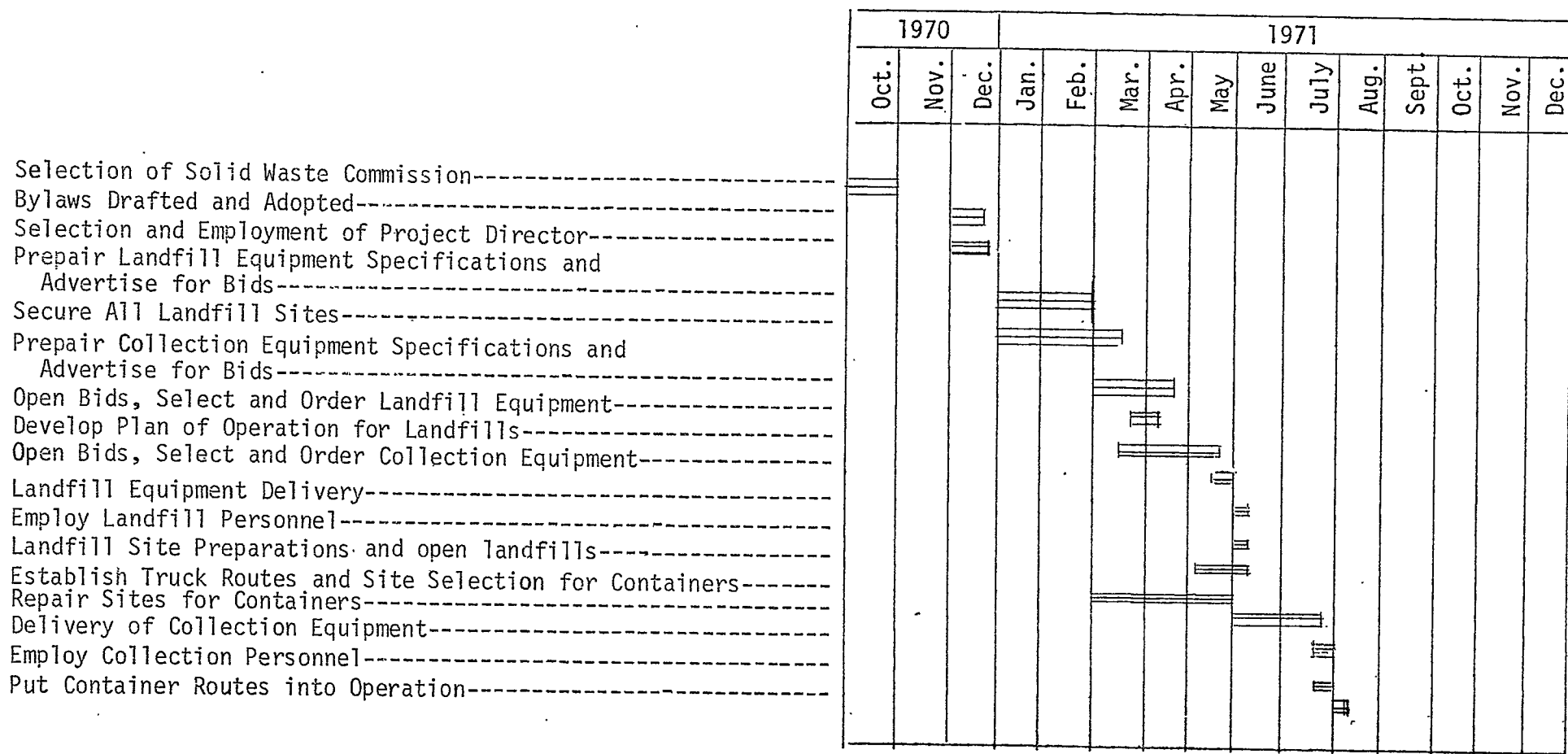
After all site preparations are completed and upon delivery of collection equipment and employment of collection personnel, the container collection system will be put into operation.

Implementation Schedule

An implementation schedule for the objectives to be accomplished during the budget period is shown in figure No. 5.

REGIONAL SOLID WASTE COMMISSION

IMPLEMENTATION SCHEDULE



PROJECT STAFFING

The professional staff for the Solid Waste Program will consist of a Director of the Solid Waste Commission. The director will possess the following qualifications:

- Considerable knowledge of solid waste management,
- Knowledge of personnel policies and practices,
- Knowledge of basic scientific principles of engineering and ability to apply to sanitary landfill operation.
- Knowledge of local, state and federal solid waste regulation and a general knowledge of water and air pollution.

Ability to plan, assign and review the work of others.

Ability to understand and carry out oral and written instructions.

Ability to present comments clearly and concisely in oral or written form.

Ability to keep records and prepare reports.

Ability to deal tactfully with public and to exercise good judgment in appraising situations and making decisions.

Acceptable Training and Experience

Graduation from an approved four year college plus experience in environmental health or an equivalent combination of training and experience.

DIRECTOR'S ASSISTANT

An employee in this class performs a variety of duties to be prescribed by the Project Director.

Illustrative Examples of Work

The Director's Assistant will be responsible to the Director to see that the landfills are operated according to the operation plan.

The Director's Assistant will be responsible along with the landfill compaction equipment operator to see that facilities such as the equipment shed, grease pit, employees' office, and fire fighting means are properly maintained.

The Director's Assistant will assist landfill compaction operators and scraper equipment operators make minor repairs and adjustments on equipment when needed.

The Director's Assistant will check with each landfill at least one time per week to insure that proper maintenance is being made on equipment as prescribed by good operating procedures and by the equipment manufacture's maintenance guide and such additional guidance as may be prescribed by the Director, Regional Solid Waste Commission.

The Director's Assistant will stand in as equipment operator at any landfill site when needed due to sickness, vacation, or vacancy of the regular operator.

The Director's Assistant will be responsible to the Director, Regional Solid Waste Commission, and will report activities and any irregularities concerning landfill operations.

Knowledge Skills and Abilities

Some knowledge of sanitary landfill operations.

Ability to operate heavy duty dirt moving equipment.

Ability to understand and apply pertinent methods of landfill operation.

Ability to record and compile a variety of landfill records.

Ability to do preventative maintenance and some repair of heavy equipment.

Acceptable Training and Experience

Completion of high school or equivalent training or experiences.

Two years experience operating heavy duty dirt moving equipment.

Demonstrable knowledge of preventative maintenance and repair of heavy equipment.

LANDFILL COMPACTION EQUIPMENT OPERATOR

Nature of Work

An employee in this class performs daily operation, supervision, and maintenance of the landfill site.

Illustrative Examples of Work

The landfill compaction equipment operator is responsible to see that the sanitary landfill is neat and orderly at all time.

The landfill compaction operator is reasonable for spreading, compacting and applying cover material.

The landfill compaction equipment operator is responsible for applying sanitary landfill principles and methods of operation as prescribed by the Director, Regional Solid Waste Commission and in accordance with provisions contained in this plan.

The landfill compaction equipment operator is responsible for the maintenance of the equipment under his care as prescribed by good operating procedures and by the equipment maintenance guide and such additions as may be prescribed by the Director, Regional Solid Waste Commission or his designee.

The landfill compaction equipment operator is responsible for the orderly flow of traffic entering and leaving the landfill site.

The landfill compaction equipment operator is responsible to see that a minimum of 6 in. of compacted soil has sealed the compacted refuse before closing the sanitary landfill each day, regardless of weather conditions.

The landfill compaction operator is responsible to see that the equipment and the sanitary landfill site is properly secured at the close of business each day.

Knowledge, Skills and Abilities

Ability to operate heavy duty dirt moving equipment.

Ability to understand and apply pertinent methods of landfill operation.

Ability to record a variety of landfill records.

Ability to carry out routine maintenance of equipment.

Acceptable Training and Experience

Completion of high school or equivalent training or experience.

One year experience operating heavy dirt moving equipment.

SELF LOADING PAY SCRAPER EQUIPMENT OPERATOR

An employee in this class performs daily operation of trenching, stockpiling of dirt for use by landfill compaction equipment operators.

Illustrative Examples of Work

The scraper equipment operator is responsible to see that an adequate stockpile of cover material is available to the landfill compaction equipment operators and will assist in cover operations as available and needed.

The scraper equipment operator is responsible for moving his equipment from one landfill site to another for the purpose of trenching and stockpiling cover material.

The scraper equipment operator is responsible for maintenance of equipment under his care as prescribed by good operating procedures and by the equipment manufacturer's maintenance guide and additions as may be prescribed by the Director, Regional Solid Waste Commission or his designee.

Knowledge, Skills and Abilities

Ability to operate heavy duty dirt moving equipment.

Ability to understand and apply pertinent methods of landfill operation.

Ability to record a variety of landfill records.

Ability to carry out routine maintenance of equipment.

Acceptable Training and Experience

Completion of high school or equivalent training and experience.

One year experience operating heavy duty dirt moving equipment.

HEAVY DUTY TRUCK DRIVER

An employee in this class performs daily operation of collection routes.

Illustrative Examples of Work

The heavy duty truck driver is responsible to see that the rural bulk containers are emptied and maintained on a regularly scheduled basis.

The heavy duty truck driver is responsible to see that the container site is neat and orderly after each service visit.

The heavy duty truck driver is responsible for maintenance of equipment under his care as prescribed by good operating procedures and by the equipment manufacture's guide and additions as may be prescribed by the project director or his designee.

Knowledge, Skills and Abilities

Ability to operate a heavy duty truck.

Ability to record a variety of collection records.

Ability to carry out routine maintenance of equipment.

Acceptable Training and Experience

Completion of high school or equivalent training and experience.

One year experience operating heavy duty truck.

Possess a current operators license for operating a heavy duty truck in the State of North Carolina.

PARTICIPATION OF OTHER AGENCIES

The design of this project has been closely coordinated with the Solid Waste, Insect and Rodent Control Section, Sanitary Engineering Division, North Carolina State Board of Health and the County Boards of Commissioners of the four counties concerned. The solid waste program represents the kind of program which they fully support.

FACILITIES AVAILABLE

Facilities will be made available as described under "Methods of Procedure for a System of Sanitary Landfills." (See page no. 16)

PROJECT EVALUATION

Since this is a new program, project evaluation will be at onset essentially simple and consist of:

1. Evaluation of landfill operation by the Regional Solid Waste Commission and the North Carolina State Board of Health.
2. Enumeration of cubic yards of refuse received at the landfills.
3. Enumeration of cubic yards of refuse collected by container trucks.
4. Opinion surveys conducted by the Regional Solid Waste Commission.

SUPPORTING DATA AND OTHER INFORMATION

See Dr. Sweeten's Report. Appendix D

PROJECT CONTINUATION

The project will be continued through local tax funds and collection provided through the county board of commissioners of the four counties involved.

PROJECT BUDGET EXPLANATION

This budget is governed by grant number 04-H-000005-01-0 , which was
(1-5)
awarded September 2, 1970.

This budget is as agreed upon on September 24, 1970, in Raleigh, North Carolina, with the following in attendance: Mr. E. J. Pascal, R.S., Sanitarian Supervisor, Burke County Health Department; Mr. K. Peter Hecht, Solid Waste Advisor, Regional Health Council; Mr. Elmer Cleveland, Regional Representative, Bureau of Solid Waste Management; Mr. George Waterhouse, Assistant Project Director, Department of HEW, Region IV; Dr. John M. Sweeten, Engineer, Bureau of Solid Waste Management, USPHS; Mr. Sidney H. Usry, Chief, Solid Waste and Vector Control Section, Sanitary Engineering Division, N. C. State Board of Health; Mr. Jerry C. Perkins, Sanitary Engineer, Solid Waste and Vector Control Section, Sanitary Engineering Division, N. C. State Board of Health; and Mr. O. W. Strickland, Program Coordinator, Solid Waste and Vector Control Section, Sanitary Engineering Division, N. C. State Board of Health.

The single exception to the agreed upon budget is item No.1 of the budget - Personnel.

In place of the four assistant landfill operators, one Director's assistant and two scraper operators will be employed and salaries are adjusted accordingly due to skills required. Total Federal and local costs will remain the same.

REFERENCES

- (1) The Design of a Sanitary Landfill in Floyd County, Georgia.
A Division of Technical Operations
Open-File Report (TSN 01.9319)
By Harry R. Little, Engineer
- (2) Study Report on Alexander, Caldwell, Burke and McDowell Counties'
Solid Waste.
John M. Sweeten, Ph.D.
Engineer, Urban Data Section
Basic Data Branch
Division of Technical Operations
Bureau of Solid Waste Management

BIOGRAPHICAL SKETCH

Give the following information for each key staff member, beginning with the program director. (Use continuation pages and follow the same general format for each person.)

Name	Sex <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	Birth Date (Mo., day, year)
Max David Johnson		December 29, 1937
Title	Social Security No.	Place of Birth
Director Regional Solid Waste Commission	412-56-6829	Gatlinburg, Tennessee

Relationship to proposed project or training program.

Director

EDUCATION (Include nursing school, colleges, and universities attended and honors conferred.)

INSTITUTION (Name and Location)	DISCIPLINE	Dates Attended		Degree and Year Conferred
		From	To	
East Tennessee State University Johnson City, Tennessee	Health Educa- tion	1956 1963	1957 1966	B.S. 1966

PROFESSIONAL EXPERIENCE (Start with Present Position and list significant experience relevant to program including Honors.)

Director, Regional Solid Waste Commission

Duty: Plan, develop and supervise a regional solid waste program.

Sanitary Supervisor

Duty: Responsible for supervising six sanitarians carrying out a general environmental health program. Responsible for planning and developing new environmental health programs. Planned and developed a county wide sanitary landfill serving 50,000 people.

Sanitarian

Duty: Certified to enforce state laws governing water supplies, sewage disposal, food handling establishments, insect and rodent control, solid waste collection, transportation and disposal.

Honors:

President elect of the North Central Piedmont Environmental Health Section of the North Carolina Environmental Health Association.

Board member of the Executive Board for the North Carolina Environmental Health Section of the North Carolina Public Health Association.

Registered sanitarian with the State of North Carolina.

ASSURANCE OF COMPLIANCE WITH THE DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE REGULATION UNDER
TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

Regional Health Council of Eastern Appalachia, Inc. (hereinafter called the "Applicant")
(Name of Applicant)

HEREBY AGREES THAT it will comply with title VI of the Civil Rights Act of 1964 (P.L. 88-352) and all requirements imposed by or pursuant to the Regulation of the Department of Health, Education, and Welfare (45 CFR Part 80) issued pursuant to that title, to the end that, in accordance with title VI of that Act and the Regulation, no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives Federal financial assistance from the Department; and HEREBY GIVES ASSURANCE THAT it will immediately take any measures necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Applicant by the Department, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which it retains ownership or possession of the property. In all other cases, this assurance shall obligate the Applicant for the period during which the Federal financial assistance is extended to it by the Department.

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property, discounts or other Federal financial assistance extended after the date hereof to the Applicant by the Department, including installment payments after such date on account of applications for Federal financial assistance which were approved before such date. The Applicant recognizes and agrees that such Federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assigns, and the person or persons whose signatures appear below are authorized to sign this assurance on behalf of the Applicant.

Dated February 18, 1971

Regional Health Council of Eastern Appalachia, Inc.
(Applicant)

By John D. Reece MD

(President, Chairman of Board, or comparable
authorized official)

201 South Green Street

Morganton, North Carolina 28655

(Applicant's mailing address)

U. S. TREASURY DEPARTMENT
INTERNAL REVENUE SERVICE

DISTRICT DIRECTOR
Greensboro, North Carolina

July 20, 1967

IN REPLY REFER TO

Form L-178

GBR:EO:1967-162

131-TRS

Regional Health Council of Eastern
North Carolina, Inc.
102 West Union Street
Morganton, North Carolina 28655

PURPOSE Charitable & Educational	
ADDRESS FOR FILING & FILE RETURNS WITH DISTRICT DIRECTOR OF INTERNAL REVENUE Greensboro, N. C.	
FORM 990-A RE- QUIRED	ACCOUNTING PERIOD ENDING June 30

Comments:

On the basis of your stated purposes and the understanding that your operations will continue as evidenced to date or will conform to those proposed in your ruling application, we have concluded that you are exempt from Federal income tax as an organization described in section 501(c)(3) of the Internal Revenue Code. Any changes in operation from those described, or in your character or purposes, must be reported immediately to your District Director for consideration of their effect upon your exempt status. You must also report any change in your name or address.

You are not required to file Federal income tax returns so long as you retain an exempt status, unless you are subject to the tax on unrelated business income imposed by section 511 of the Code, in which event you are required to file Form 990-T. Our determination as to your liability for filing the annual information return, Form 990-A, is set forth above. That return, if required, must be filed on or before the 15th day of the fifth month after the close of your annual accounting period indicated above.

Contributions made to you are deductible by donors as provided in section 170 of the Code. Bequests, legacies, devises, transfers or gifts to or for your use are deductible for Federal estate and gift tax purposes under the provisions of section 2055, 2106 and 2522 of the Code.

You are not liable for the taxes imposed under the Federal Insurance Contributions Act (social security taxes) unless you file a waiver of exemption certificate as provided in such act. You are not liable for the tax imposed under the Federal Unemployment Tax Act. Inquiries about the waiver of exemption certificate for social security taxes should be addressed to this office, as should any questions concerning excise, employment or other Federal taxes.

This is a determination letter.

Very truly yours,

J. E. Wall
J. E. Wall
District Director

EXAMPLE OF A STATEMENT OF COMPLIANCE FOR PROTECTION OF THE INDIVIDUAL AS
A RESEARCH SUBJECT

Institutional Assurance on Research Involving Human Subjects

Regional Health Council of Eastern Appalachia, Inc.

The (name of institution) will comply with the principles of the Public Health Service policy with regard to research involving human subjects which requires a review independent of the investigator or director to safeguard the rights and welfare of those subjects. It assures the Public Health Service that it will establish and maintain advisory groups competent to review research plans involving human subjects, prior to the initiation of this research, in order to insure adequate safeguards. Group reviews and decisions will be carried out in reference to (1) the rights and welfare of the individuals involved, (2) the appropriateness of the methods used to obtain informed consent, and (3) the risks and potential benefits of the proposed research.

The institution agrees to a continuing exchange of information and advice between the review group and the investigator or director, particularly to deal with proposed changes in research design, and with emergent problems which may alter the investigational situation with regard to the criteria cited above. The institution will assure itself that its policies and the advice of its review groups are followed. It will also provide whatever professional attention or facilities are required to safeguard the rights and welfare of human subjects involved in research. Records of group review and decision on the use of human subjects and of informed consent will be developed and kept by the institution.

Signed

Roland T. Stump

Title

Acting Coordinator and
Administrative Officer

Date

February 18, 1971

Enclosures (Implementing Guidelines)

Regional Health Council of Eastern Appalachia, Inc.

OTHER GRANT SUPPORT

INSTRUCTIONS: List all other support for this project, including requests now being considered by HSMHA. Amounts shown should reflect total funds awarded or pending over the entire grant period indicated in the final column. Use continuation page, if necessary, and follow same format.

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION SUPPORT

GRANT NUMBER (If designated)	TITLE OF ACTIVE OR APPROVED PROJECT	TOTAL AMOUNT	TOTAL PERIOD OF SUPPORT
			GIVE DATES (FROM-TO)
04-H-000005-01-0	Solid Waste Disposal Plan for Eastern Appalachia	279,695	7/1/70 - 6/30/75

APPLICATIONS PENDING DECISION (Give title and requested amount)

ALL OTHER FEDERAL AND NONFEDERAL SUPPORT (RELATED TO THIS PROJECT)

SOURCE AND PROJECT NO.	TITLE OF PROJECT OR PROGRAM	TOTAL AMOUNT	TOTAL PERIOD OF SUPPORT
			GIVE DATES (FROM-TO)
Burke County	Solid Waste Disposal Program	\$59,901.07	7/1/70 - 6/30/75
Alexander County	Solid Waste Disposal Program	19,316.76	7/1/70 - 6/30/75
Caldwell County	Solid Waste Disposal Program	56,264.18	7/1/70 - 6/30/75
McDowell County	Solid Waste Disposal Program	30,412.99	7/1/70 - 6/30/75
		\$165,895.00	

APPLICATIONS PENDING DECISION (Give title and requested amount)

REGIONAL HEALTH COUNCIL STATEMENT

Notice of Grant Award, in the amount of \$279,695, was received by the Regional Health Council of Eastern Appalachia on September 7, 1970. A restriction placed on it read, "an acceptable solid waste plan must be filed with the Regional Office before any expenditures of funds can be made under this grant."

The Regional Health Council of Eastern Appalachia ask your approval of the plan submitted herewith.

A P P E N D I X A

REGIONAL SOLID WASTE DISPOSAL COMMISSION

BY-LAWS

Adopted October 15, 1970

ARTICLE I

Name

Section 1. The name of this organization shall be the Regional Solid Waste Disposal Commission, hereinafter referred to as the Commission.

ARTICLE II

Geographic Region

Section 1. The region of interest, and the area in which this Commission shall be active is situated within the boundaries of the Counties of Alexander, Burke, Caldwell, and McDowell.

ARTICLE III

Purpose and Objectives

Section 1. The purpose of this Commission is the sanitary disposal of solid waste in the region and the elimination of burning and open dumps.

ARTICLE IV

Offices

Section 1. The principal office of the Commission shall be in the city of Morganton, in Burke County, North Carolina, or at such other place as may hereafter be selected by the Commission.

Section 2. The Commission may also have and maintain such other offices or places of business at other locations, either inside Burke County or other counties of the region, as the Commission may from time to time determine, or the business of the Commission may require.

ARTICLE V

Membership

Section 1. The Commission shall be composed of ten members. Two members selected by the County Commissioners of Burke County, two members by the County Commissioners of Caldwell County, one member by the Commissioners of Alexander County, and one member by the County Commissioners of McDowell County. One member from each County shall be selected by the incorporated municipalities in the County.

Section 2. Term of office. Members of the Commission from Alexander and McDowell County shall serve - one man for a two year term - one man for a three year term. Members of the Commission selected by Caldwell and Burke County shall serve for a one, two, and three year term.

Section 3. Vacancies. Any vacancies in the membership shall be filled by the appointing authority.

ARTICLE VI

Commission Officers

Section 1. The officers of the Commission shall consist of a Chairman, First Vice-Chairman, Second Vice-Chairman, and Secretary. All of whom are to be elected from among the Commission members.

Section 2. The officers shall be elected at the annual meeting which shall be held the third Thursday in October at 7:30 p.m. This meeting shall be deemed to be the annual meeting of the Commission.

Section 3. All officers shall be elected for a term of one year to expire with the next annual meeting, or until terminated by the Commission. Any officer may be re-elected to serve any number of terms so long as he remains a member of the Commission.

Section 4. Vacancies in any office arising from any cause may be filled by the Commission at any regular or special meeting.

Section 5. In addition to the Commission officers named above, a Director of Solid Waste shall be employed to conduct the major business activities of the Commission. Said Director of Solid Waste will be appointed by the Regional Health Council, upon recommendation of the Commission, to serve on a permanent basis, but may be removed at any time, with cause, upon recommendation of the Commission to the appointive authority.

Section 6. The Commission may appoint or elect such other officers, agents, and/or employees as shall be deemed necessary, who shall hold their offices for such terms, and shall exercise such powers, and perform such duties as shall be determined from time to time by the Commission.

ARTICLE VII

Duties of Officers

Section 1. The Chairman of the Commission shall:

- a. Preside at all regular and special meetings of the Commission;
- b. See that all orders and resolutions of the Commission are carried out, and provide general supervision to all officers;
- c. Execute all conveyances, bonds, notes, contracts, and agreements authorized by the Commission.
- d. Appoint work committees as may be directed by the Commission;
- e. Represent the Commission at various public meetings, closed committee hearings, cooperating agency meetings, etc., at which Commission affairs may be discussed and considered;
- f. Carry on a variety of public relations activities, such as speaking before citizen groups, holding news conferences, radio and television interviews, etc., where Commission proposals, programs and accomplishments may be discussed.

Section 2. The First Vice-Chairman of the Commission shall perform the duties of the Chairman in his absence.

Section 3. The Second Vice-Chairman shall perform the duties of the Chairman in the absence of the Chairman and the First Vice-Chairman.

Section 4. The Secretary of the Commission shall keep or arrange for the keeping of minutes of all meetings of this Commission, and record all votes on Commission questions. Upon reading of said minutes and approval by the Commission, they shall be filed in books to be kept for that purpose. He shall give or cause to be given notice of all meetings of the Commission, and shall perform such other duties as may be prescribed by the Commission or by the Chairman.

Section 5. The Director of Solid Waste of the Commission shall:

- a. Maintain and manage the business office of the Commission;
- b. Be custodian of all Commission property and records;
- c. Conduct the correspondence of the Commission;
- d. Assist the Commission officers in carrying out their duties as may be appropriate;
- e. Attend all Commission meetings and be prepared to report on any and all business, activities, meetings, proposals, cooperative endeavors, etc., in which the Commission is currently engaged or may be in the process of developing.
- f. Maintain close personal contact with representatives of Federal, State and Local agencies which currently are, or subsequently will be cooperatively involved in accomplishing the objectives of the Commission.
- g. Acquire and maintain a working knowledge of the current laws, regulations and procedures which govern the above Federal, State and Local agencies in order that the Commission may take full advantage of opportunities presented for joint endeavors.
- h. Prepare annual budgets for consideration and adoption by the Commission and for presentation to the Counties and the Regional Health Council.
- i. Prepare annual reports showing activities and accomplishments leading toward fulfilling Commission objectives, together with audited reports of receipts and expenditures for presentation to the respective Boards of County Commissioners.
- j. Be responsible for carrying out all orders and directives issued by the Commission or by the Chairman under whose supervision he shall work.
- k. Be responsible for the supervision and direction of any other employees hired by the Commission.

ARTICLE VIII

Compensation

Section 1. All members of the Commission shall be paid on a per diem and mileage basis for time officially devoted to the Commission's business, including Commission meetings, budget hearings in the various counties, and other meetings or activities as may from time to time be authorized by the Commission. The per diem and mileage rates shall be in accord with the North Carolina Statutes. This compensation to be paid by each county to its representatives if they so choose.

ARTICLE IX

Meetings

Section 1. The meeting at which these By-Laws are adopted shall be deemed the annual meeting for the year 1970. Succeeding annual meetings of the Commission shall be held in the principal offices of the Commission at 7:30 p.m. on the third Thursday of October each year.

Section 2. Regular meetings of the Commission shall be held in the principal offices of the Commission at 7:30 p.m. on the third Thursday of every month of the year.

Section 3. Special meetings may be called by the Chairman at any time or place by giving notice to the Commission members, together with an outline of business to be acted upon.

Section 4. A quorum shall consist of six commission members present in person. If no quorum is present at any meeting, it may be adjourned from time to time until a quorum shall be present. At any such adjourned meeting when the required commission members are present, any business may be transacted which might have been transacted at the meeting originally appointed.

Section 5. All meetings shall be conducted in accordance with Roberts Rules of Order, unless modified from time to time by action of the Commission.

Section 6. At all meetings, each of the Commission members present shall have one vote, except the Chairman who shall vote only in case of a tie, and all Commission actions shall require a majority vote of the Commission members present and voting.

ARTICLE X

Budgets

Section 1. The Commission shall prepare an annual budget for presentation to the respective Boards of County Commissioners, and the Regional Health Council with specific budget requests to the individual counties. Such requests shall be in amounts proportioned among the respective counties in accordance with the most recent decennial population figures.

Section 2. The annual budget shall show proposed cash outlays for all operating expenses, and capital equipment and improvements. Each item of expenditure shall be justified and explained in appropriate detail. Such budget shall also show any equipment and facilities provided in kind. A breakdown of the source of funds should show amounts to be appropriated through federal grants.

Section 3. The fiscal year for this Commission shall be the same as the beginning date of the Federal Grant for the Solid Waste Disposal Project.

ARTICLE XI

Amendments

Section 1. These By-laws may be amended at any regular or special meeting of the Commission by a majority vote of all Commission members.

ARTICLE XII

All matters and things not specifically designated or delegated herein shall be subject to the action of the Commission.

Formally approved: _____ Date: _____

APPENDIX B

DIRECTOR OF SOLID WASTE

Definition:

Under general direction of regional solid waste committee with broad latitude for independent judgement; to plan, organize and direct the solid waste program of the region; to perform all the administrative duties required; to direct the activities required by federal, state, and local authorities; and to perform all related duties as assigned.

Examples of Work:

To locate land fill sites; to have preformed required soil test and to negotiate for the aquisition of land.

To plan and direct an educational program for the general public; give talks to civic clubs, P.T.A. or any interested group in order to sell the landfill idea to the people.

To work with officials of government and business.

To prepare bid specifications for equipment and improvements needed in the landfill program.

To employ needed personnel and to direct their activities.

To work with the news media in order to better disseminate information to public.

To prepare required reports on activities and expenditures to federal and local governmental bodies; to set up system of daily activities and reports.

To be able to manage people.

To prepare budgets

To prepare proper report as required by federal officials for grants if needed.

To travel the region and supervise the operation of landfill and container collection system.

To determine the location of waste containers.

A P P E N D I X C

REQUIREMENTS FOR RURAL CONTAINER COLLECTION SYSTEM

The number of people presently without solid waste collection service in the four county Eastern Appalachian Health Region was estimated at 61,394 by the 1968-69 statewide survey of community solid waste practices.

Experience gained with the rural bulk collection system installed in Chilton County, Alabama has indicated that bulky items, such as brush, dead animals, demolition wastes, and farm machinery as well as yard and garden wastes are not emptied into the bulk containers by rural residents. As a result this system is designed for Eastern Appalachia using a solid waste generation rate of one pound per capita per day. (Sweeten's report) It is also realized that 100 percent participation cannot be expected in the first year with people that have had no service. More containers and vehicles can then be added to the system as needed.

Container Capacity Requirement

Using the above waste generation rate and an uncompacted solid waste density of 175 pounds per cubic yard in the bulk containers, the daily solid waste volume would be: (Based on 75 percent of the rural population of 61,394 using the containers)

$$\text{Solid Waste Volume} = \frac{(1.0 \text{ pounds per capita per day}) (46,046 \text{ persons})}{(175 \text{ pounds per cubic yard})} = 263 \text{ cubic yards per day}$$

The minimum number of 4-cubic yard bulk containers needed for twice weekly collection would be:

$$\text{Number of containers} = \frac{(263 \text{ cubic yards per day}) (3.5 \text{ days})}{4\text{-cubic yards per container}} = 225 \text{ containers}$$

However, if the containers are 75 percent full on the average for each collection, a total of 281 containers will be needed.

Vehicle Requirements

The number of 25-cubic yard compactor vehicles required can be computed as follows: Assuming a compacted refuse density of 500 pounds per cubic yard in the trucks, the solid waste tonnage handled daily by each collection vehicle in completing two loads would be 25,000 pounds per vehicle per day. The average quantity of solid waste to be handled daily in the four-county region is 46,046 pounds per day. Therefore, the number of vehicles required is:

$$\begin{array}{lcl} \text{Number of 25-cubic yards} & & \\ \text{Collection Vehicles} & = & \frac{46,046 \text{ pounds per day}}{25,000 \text{ pounds per day per truck}} \\ & & = 1.8 \text{ or } 2 \text{ trucks} \end{array}$$

Prepared by-

Solid Waste, Insect and Vector Control Section
Sanitary Engineering Division
N.C. State Board of Health
Raleigh, N.C. 27602

A P P E N D I X D

CHAPTER I

DESCRIPTION OF THE EASTERN APPALACHIA REGION

General Description

by John M. Sweeten, Engineer
Bureau of Solid Waste Management
U.S. Public Health Service

The four counties comprising the Eastern Appalachia Health Region have a combined land area of 1679 square miles divided among the four counties as follows: Alexander - 255 sq-miles, Burke - 506 sq-miles, Caldwell - 476, and McDowell 442¹. These counties lie within two of North Carolina's major physiographic provinces: the Blue Ridge Mountain province and the Inner Piedmont province². The Blue Ridge Mountains form the northern and western boundaries for the region. According to Sumison and Lancy², the boundary of the provinces is at the foot of the mountain where the altitude is approximately 1300 to 1500 ft. The Inner Piedmont has a gentle to moderate relief with broad peneplained valleys separating monadnocks or hills*. The topography of the Piedmont contrasts sharply with the steep gradients and ridges of the eastern Blue Ridge Mountains. In the Blue Ridge part of the area, altitudes range from 1300 ft near Lake James to 6684 ft on the summit of Mt. Mitchell, which lies in Yancey County, four miles west of the McDowell County line. The greatest topographic relief is along the eastern front of the Blue Ridge province, where high gradient streams flow into the Catawba and Yadkin Rivers.

*A peneplain is a land surface worn down to very low relief by streams and mass erosion. A monadnock is a conspicuous, residual hill remaining on a peneplain.

Concise descriptions of the topography, principal drainage features, basic economy and water supply source for each of the 4 counties considered have been compiled from other studies ^{3, 2}. Portions of the county descriptions relevant to solid waste generation, transportation, and disposal in sanitary landfills are presented herein.

McDowell County

According to Sumison and Laney²:

"...McDowell County is situated in the southwest part of the area of investigation [see Figure 1]. In common with Burke and Caldwell Counties, it lies partly in the inner Piedmont province and partly in the Blue Ridge physiographic province. From southeast to northwest monadnock-like hills separated by moderately wide, linear valleys in southeast McDowell County yield to deeply dissected, rugged slopes of the eastern Blue Ridge front near the Catawba River. Altitudes range from less than 1,000 feet in the southeast corner to 5,665 feet above mean sea level on High Pinnacle at the northwest corner of the county. McDowell County lies mostly within the Catawba River drainage basin. Tributaries of the Broad River drain a small part of southern McDowell County. The Catawba River courses northeastward near the Blue Ridge-inner Piedmont boundary and is impounded in Lake James....."

"...Marion, the county seat, is the largest town and Old Fort is the only other town of substantial size in McDowell County. Agriculture dominates the economy to which forest products are supplementary. About 23 percent of the county is farmland. Manufacturing, mainly of furniture and textiles, is localized in and near Marion and Old Fort. Quarrying, about 8 miles north of Marion, produces dolomite used mostly for road metal."

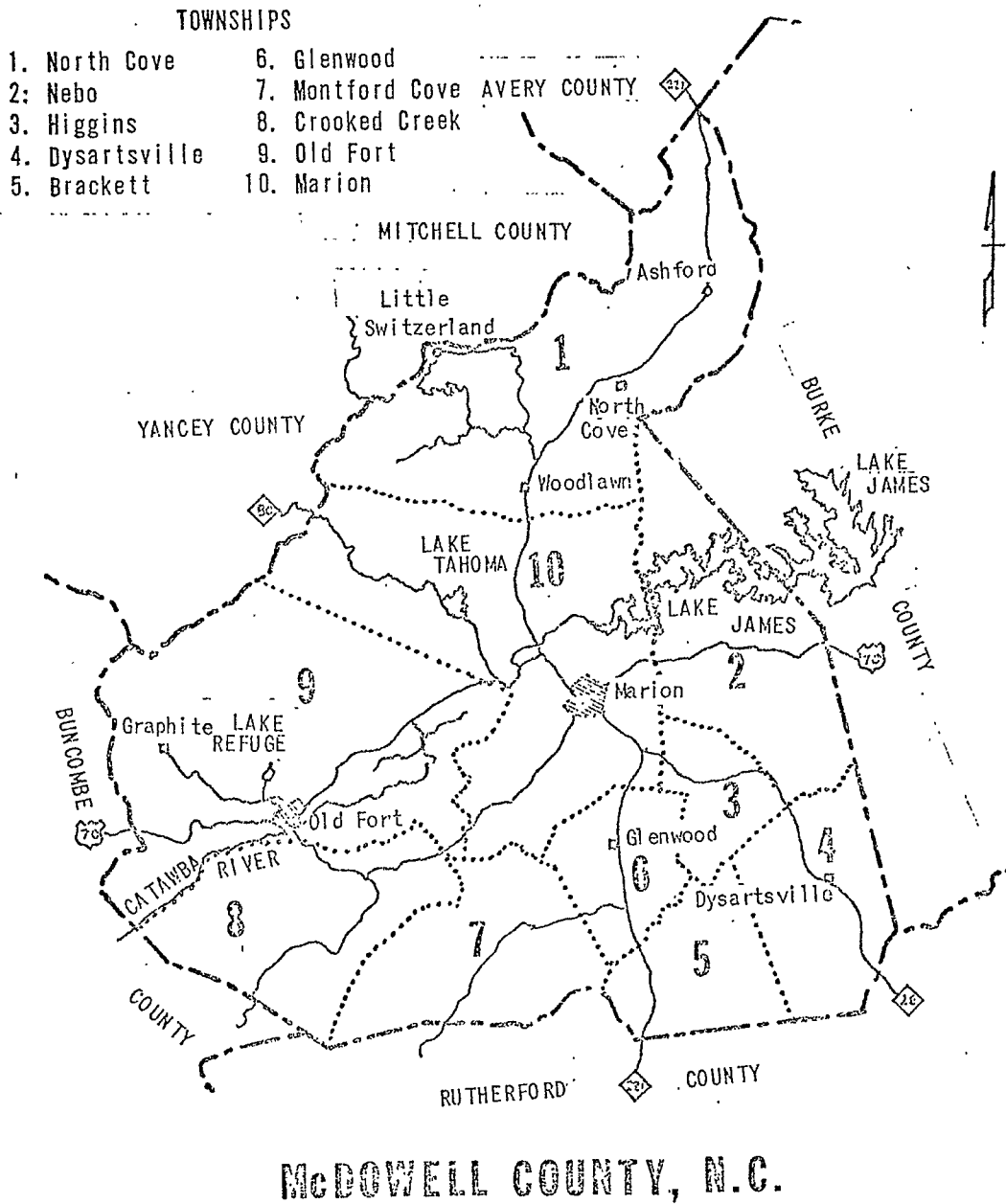


Figure 1. Map of McDowell County Showing Locations of Municipalities and Townships (from Sumison and Laney (2)).

"...Surface water is the source of municipal supplies for Marion and Old Fort. The water is filtered, chlorinated, and additionally treated before use. Drilled wells furnish water to many farms and outlying residences. Most of the drilled wells are less than 200 feet deep. Of 27 such wells the average depth is 110 feet and the average yield is 14.5 gallons per minute. ...Dug and bored wells are common throughout the inner Piedmont portion of McDowell County, providing domestic water for farms and residences. Of 60 dug and bored wells the average depth is 39 feet and the average depth to the water table is 27 feet. ...Springs are more commonly used in the Blue Ridge part of McDowell County."

Burke County

Sumison and Laney² described Burke County as follows:

"Burke County is in the [south central] part of the area of investigation [see Figure 2]. It is mostly within the inner Piedmont province, but in the northwest it lies in part on the steep eastern slope of the Blue Ridge province. Topography in Burke County is of greatly contrasting relief; from monadnock-like hills separated by broad valleys in the inner Piedmont to high-gradient, deeply dissected slopes on the Blue Ridge front. Altitudes range from less than 1,000 feet above mean sea level at several places on the southeast boundary to 4,350 feet on Long Arm Mountain in northwest Burke County near Linville Falls. Burke County lies within the Catawba River drainage basin. Streams and drainage courses generally appear to be of subsequent development as they are closely related to geologic structural features..."

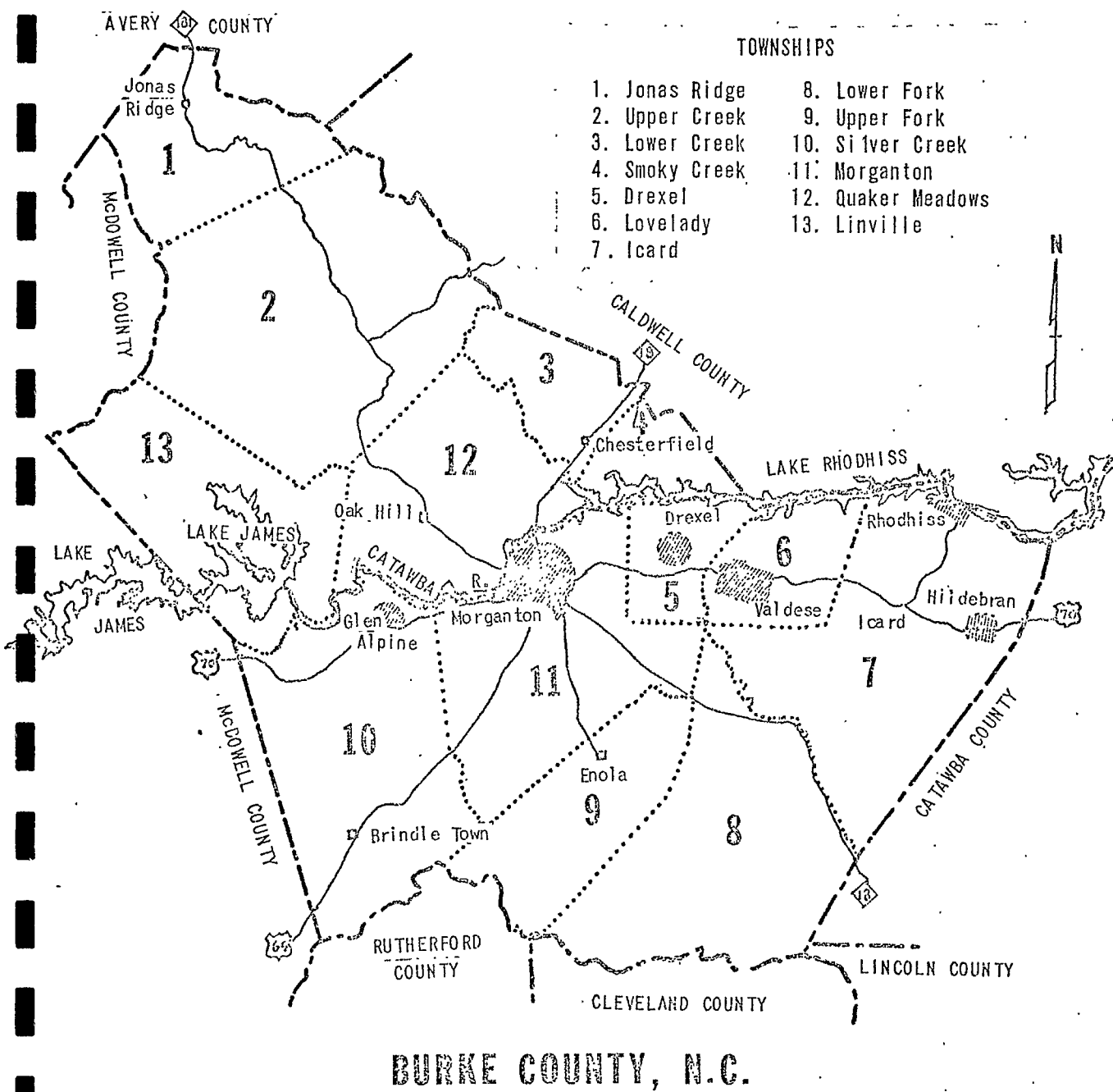


Figure 2. Map of Burke County Showing Locations of Municipalities and Townships (from Sumison and Lahey (2)).

"The largest towns are Morganton, the county seat, Glen Alpine, Drexel, Valdese, and Hildebran. The economy is predominately agricultural; about 27 percent of the county area is farmland. Forest products supplement agriculture. Manufacturing, mainly of textiles and furniture, is localized in and near the larger towns."

"...Drilled wells furnish much of the domestic, industrial, and municipal water supplies, but surface-water storage provides the greatest quantities of industrial and municipal water in Burke County. Principal sources of surface water are the impoundments of the Catawba River in Lake Rhodhiss and the Henry Fork of the Catawba River. The Lake James impoundment of the Catawba River is primarily a source of hydroelectric power. Most drilled wells in Burke County are less than 200 feet deep. Of 62 such wells the average depth is 137 feet and average yield 14 gallons per minute. ...Dug and bored wells are common in outlying areas. Of 32 dug and bored wells the average depth is 40 feet and the average depth to the water table is 27 feet. Springs are not as commonly used in Burke County as in counties wholly within the Blue Ridge province. Glen Alpine and Rhodhiss are the only communities in Burke County which use a ground water for municipal supplies. All other municipal water systems use surface runoff which is filtered, chlorinated, and additionally treated before use."

Caldwell County

Sumison and Laney² described Caldwell County as follows:

"Caldwell County is in the [north central] part of the area of investigation [see Figure 3]. The northwestern part of the county lies on the

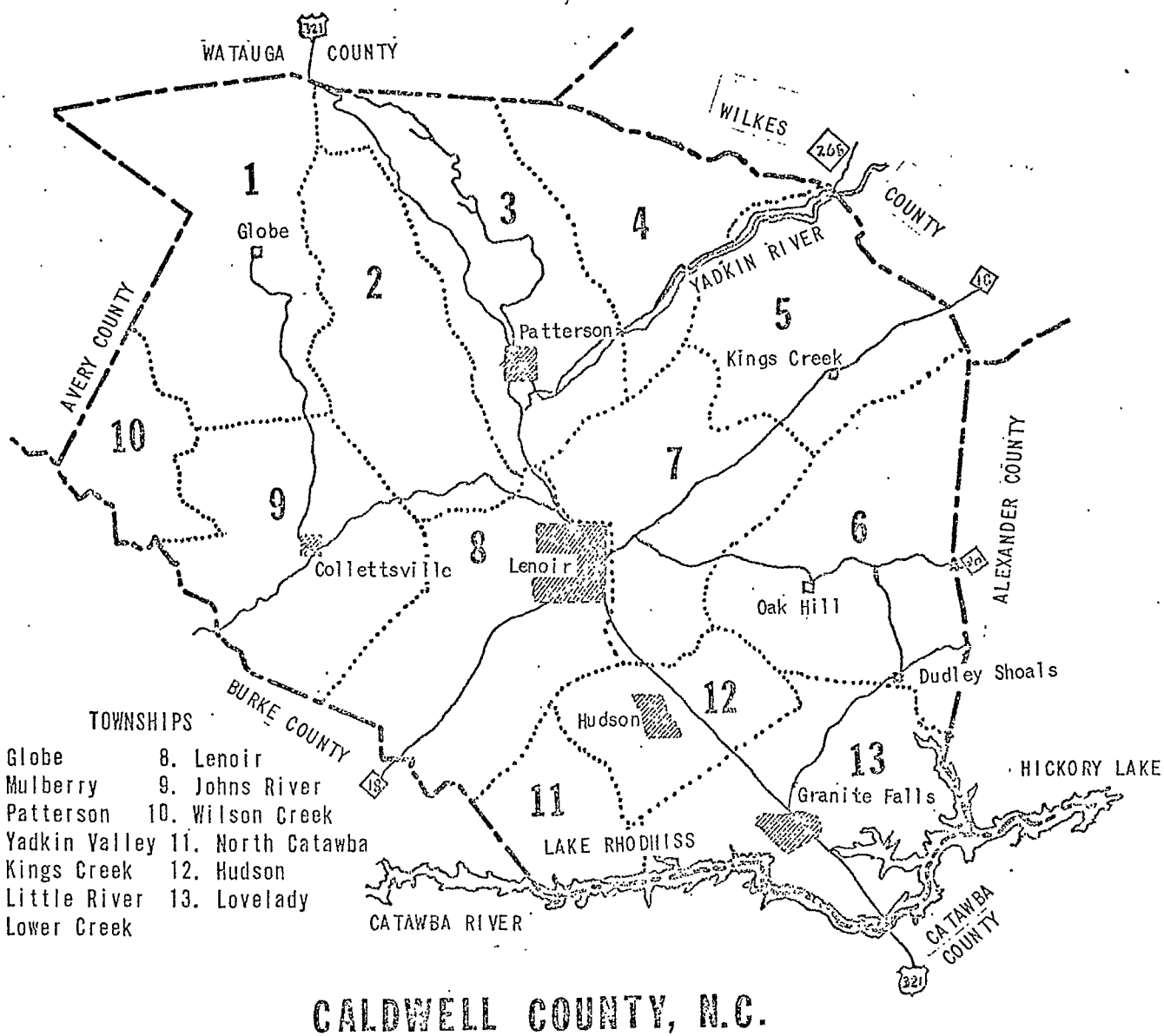


Figure 3. Map of Caldwell County Showing Locations of Municipalities and Townships (from Sumison and Laney (2)).

deeply dissected slope of the eastern Blue Ridge front, and the lower ground in the southeast is within the inner Piedmont province. Topography in Caldwell County is of mounting relief from southeast to northwest; monadnock-like hills separated by moderately broad valleys of the inner Piedmont give way to high gradients on the rugged slopes of the Blue Ridge front. Altitudes range from less than 1,000 feet near Lake Rhodhiss to over 5,900 feet above mean sea level on Grandfather Mountain at the northwest corner of the county. Caldwell County lies mostly in the Catawba River drainage basin, but the northeast part of the county is drained by the Yadkin River and its tributaries. Streams and drainage courses are believed to be of subsequent development as they appear to be closely related to structural geologic features; joint and shear systems are coincident to most streams."

"Lenoir, the county seat, is the largest town in Caldwell County. Other towns of substantial size are Whitnel, Hudson, Granite Falls, and Patterson. Caldwell County is predominantly agricultural; about 31 percent of the county is farmland. Forest products supplement agriculture. Manufacturing, mainly of textiles and furniture, is localized in the larger towns."

"...Surface-water storage, principally from impoundment of the Catawba River in Lake Rhodhiss, provides most of the municipal and industrial water supplies in Caldwell County. The water is filtered, chlorinated and additionally treated before use. Ground water is the source of the municipal supply at Hudson. Drilled wells provide water for farms and outlying residences throughout the county. Most of the drilled wells are less than 200 feet deep. Of 59 such wells the average depth is 123 feet and average yield is 9 gallons

per minute. Dug and bored wells are common in the inner Piedmont part of the county. Their average depth is 30 feet and average depth to the water table is 22 feet. Springs are most commonly used in the Blue Ridge part of the area to provide domestic water supplies."

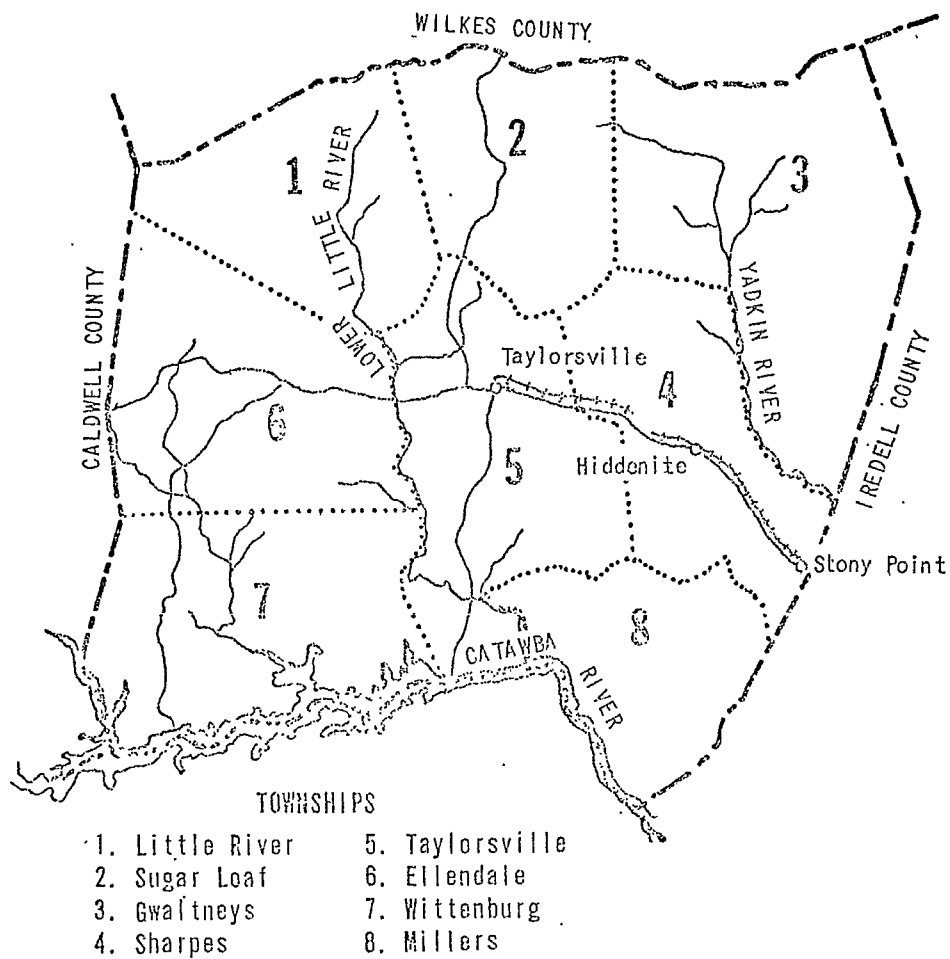
Alexander County

Alexander County, shown in Figure 4, lies at the northeastern end of the Eastern Appalachia region. The county is chiefly agricultural with corn, cotton and tobacco being the major crops grown. The only incorporated town in the region is Taylorsville.

LeGrand³ gave the following description of Alexander County:

"The topography is hilly, especially in the area west and north of Taylorsville where mountain peaks and ridges are common. Several peaks of the Brushy Mountains along the northern boundary of the county have elevations of more than 2,500 feet. The area south and east of Taylorsville is a southeastward-sloping peneplain dissected by a close network of streams. The headwaters of the larger streams are in the mountain sections in the north and west. The drainage in the general area northeast of Taylorsville is southeastward to the South Yadkin River. In the remainder of the county the drainage is largely southward toward the Catawba River. The streams are swift and commonly clear. Their courses are devious and apparently are not closely related to structural weaknesses in the underlying rocks."

"...All water supplies in Alexander County are obtained from wells and springs. Dug and bored wells and springs are used extensively in the rural areas. Springs, most of which yield less than 5 gallons a minute, are common, especially in the mountainous areas west and north of Taylorsville..."



ALEXANDER COUNTY, N.C.

Figure 4. Map of Alexander County Showing Location of Municipalities and Townships (from LeGrand (3)).

"...There may be a great contrast in yields of wells locally as a result of the hilly and mountainous topography, the wells on hills yielding small amounts and wells on lower topographic features yielding large amounts of water. The streams in many places are bordered by flood-plain deposits containing coarse sand and gravel, which are probably capable of furnishing large amounts of water to wells; however, it seems unlikely that these sources of water will be developed in the near future because they are not near rail lines and population centers."

Climatic Data

The region experiences a wide variation in temperature which can be partially attributed to elevation and to orographic influences. The mean annual temperature of the region ranges from 42.8 to 59.1 F with an average of 55.0 F, while the extreme highs and lows on record were 106F at Morgantown and -18 F at Lenoir respectively⁴.

Precipitation data obtained from thirteen weather stations within and adjacent to the four-county Eastern Appalachia region revealed that the mean annual rainfall varied from 73.5 inches/yr at Mt. Mitchell to 46.1 inches/ yr at the Rhodhiss Power Plant at elevation 935 ft. The mean annual precipitation for 10 stations within the study region was 52.7 inches/yr. Average monthly precipitation amounts for Blue Ridge and Piedmont province weather stations in or adjacent to the four county study region are contrasted in Figure 5.

Snowfall records⁴ were kept only at the Lenoir station within the study region, although such records are also available for Hickory Municipal Airport near the Burke-Caldwell-Catawba County lines. The average annual snowfall for Lenoir was 8.7 inches.

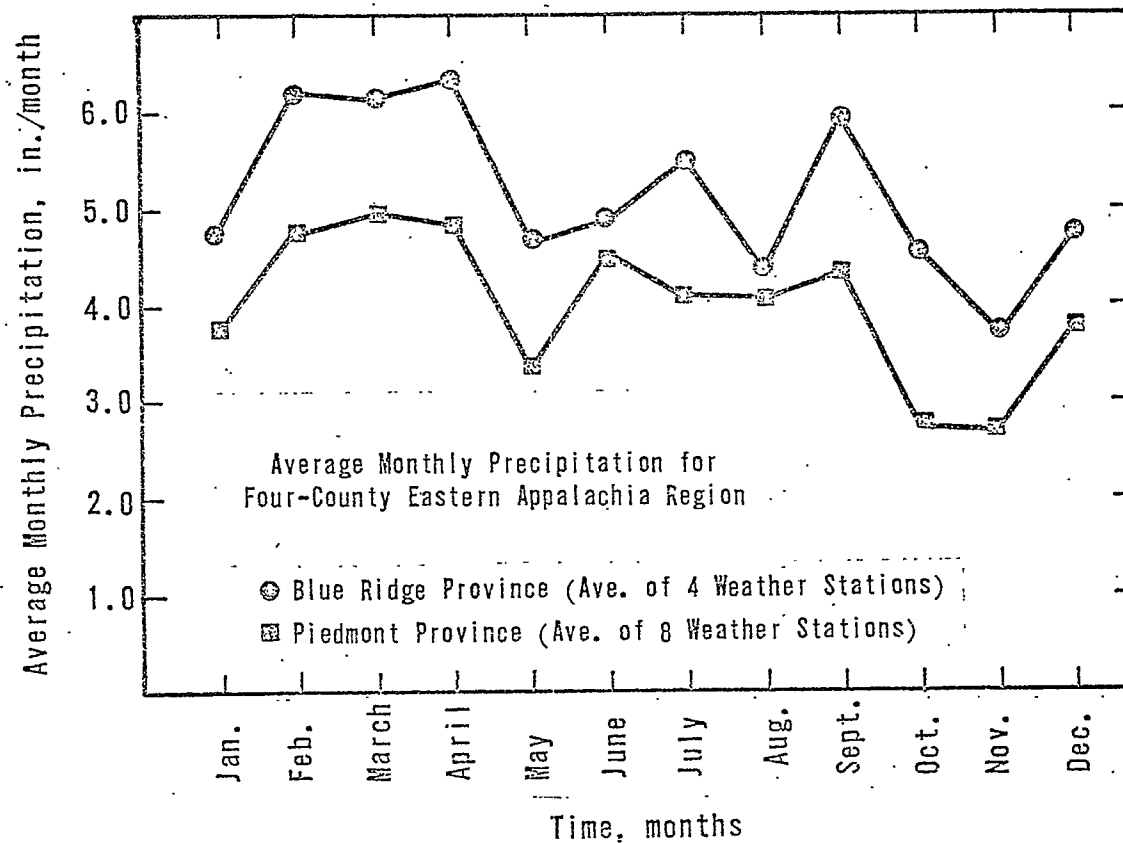


Figure 5. Comparison of average monthly precipitation for portions of eastern Appalachia Region lying within the inner Piedmont and Blue Ridge Mountain physiographic provinces. (Data from Weather Bureau, U.S. Department of Commerce)

Population Magnitude and Distributed

Population data for the Eastern Appalachia region was compiled for the years 1940, 1950, and 1960 from Bureau of Census, U.S. Department of Commerce records. The populations of each township and principal municipality within the four-county region are presented in Appendix A. Locations of the individual townships are shown in Figures 1-4. Preliminary population estimates from the 1970 census were also obtained for each county, although 1970 data for townships and municipalities were unavailable.

Population projections for 1980, 1990, and 2000 for the Eastern Appalachia region were developed from the county population figures for 1940-70. The incremental increase method, used to compute these population projections is illustrated in Appendix B. The resulting population projections for McDowell, Burke, Caldwell, and Alexander counties are presented in Table 1.

TABLE 1

POPULATIONS OF COUNTIES IN EASTERN APPALACHIA REGION

County	Population in Census Years				Projected Populations		
	1940	1950	1960	1970 Prelim.	1980 Est.	1990 Est.	2000 Est.
Alexander Co.	13,454	14,554	15,625	18,599	21,251	24,840	29,367
Burke Co.	38,615	45,518	52,701	57,398	62,587	66,673	69,656
Caldwell Co.	35,795	43,352	49,552	55,769	61,755	67,071	71,717
McDowell Co.	22,996	25,720	26,742	27,704	28,392	28,199	27,125
Total	110,860	129,144	144,620	159,470	173,985	186,783	197,856

References

1. North Carolina State Stream Sanitation Committee. The Catawba River basin, 1956-61. Pollution Survey Report No. 11, North Carolina Department of Water Resources, Raleigh, N. C., 1961. 441 p.
2. Sumison, C. T. and R. L. Laney. Geology and ground-water resources of the Morganton area, North Carolina. Ground Water Bulletin No. 12, North Carolina Department of Water Resources. Raleigh, N. C., March, 1967, p. 54-88.
3. Le Grand, H. E. Geology and ground water in the Statesville are, North Carolina. Bulletin No. 68, North Carolina Department of Conservation and Development. Raleigh, N. C., 1954. p. 23-27.
4. Climatic Summary of the United States, Supplement for 1951 through 1960: North Carolina. Climatology of the United States No. 86-27, U.S. Department of Commerce, Weather Bureau Washington, U.S. Government Printing Office, 1965. 85 p.

CHAPTER II
PRESENTATION AND ANALYSIS OF DATA

by John M. Sweeten*

This chapter contains a summary of existing solid waste generation data and solid waste management practices in the four-county Eastern Appalachia Health Region. To correct deficiencies in these practices by providing all residents with an environmentally acceptable, yet feasible solid waste management system, alternative systems are defined and evaluated by economic analysis. The most practicable is then chosen for implementation and justified on the basis of economic, political, and other considerations.

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Existing Solid Waste Management Practices

Solid Waste Generation Rates

Results obtained from the 1968 state survey of solid waste management practices revealed that 124,064 tons/year of solid waste was collected by municipal and private collection agencies from McDowell, Burke, Caldwell, and Alexander counties. This quantity of solid waste was produced mainly by municipal sources, such as residences, industrial establishments, institutions, and commercial enterprises which represented a population of 97,688 persons. Thus, the solid waste generation rate for municipal sources was 6.96 pounds/capita/day (or 1.27 tons/capita/year).

Approximately 38.6 percent of the region's population did not receive organized collection service but generated 22,447 tons/year of solid waste, primarily from rural families. Therefore, in 1968, composite solid waste generation rate for the four-county region embracing 159,082 inhabitants, was 5.05 pounds/capita/day or 0.920 tons/capita/year.

Residential Solid Waste Generation

A considerable amount of refuse is generated by visitors and campers within the recreational areas in the Eastern Appalachia region. These recreational areas include the Pisgah National Forest and the lakes along the Catawba River.

The Pisgah National Forest and its associated wildlife refuges embrace 66,358 acres of McDowell County, 13,160 acres in Burke County,

and 49,411 areas in Caldwell County. In 1969, the recreational use of these National Forest Service lands was distributed as follows: 65,300 visitor-days in McDowell County; 106,200 visitor-days in Burke County; and 112,600 visitor-days in Caldwell County. Assuming one-third of these visits were overnight stays and the remaining two-thirds were day-use visits only, the total quantity of solid waste produced can be estimated as follows (1):

a. Solid waste generated by day-use visitors:

$$(2/3) (284,100 \text{ visitor-days/year}) (0.96 \text{ pounds/visitor-day}) = \\ 181,824 \text{ pounds/year or } \underline{\underline{90.9 \text{ tons/year}}}$$

b. Solid waste generated by overnight visitors:

$$(1/3) (284,100 \text{ camper-days/year}) (1.26 \text{ pounds/camper-day}) = \\ 119,322 \text{ pounds/year or } \underline{\underline{59.7 \text{ tons/year}}}$$

c. Total solid waste generated = 150.6 tons/year

The Forest Service, U.S. Department of Agriculture, operates four land disposal sites within the study areas. Refuse produced within the Pisgah National Forest and adjacent wildlife refuges is handled by Forest Service personnel and is disposed of in these four sites, except during annual clean-up projects when private collectors are contracted to haul solid waste to city- or county-owned land disposal sites. For purposes of this study, this refuse leaving the Forest Service property will be assumed to be negligible.

Three major lakes used as power pools for hydroelectric energy generation, lie within or border the Eastern Appalachia region. These

reservoirs along the Catawba River are Lake James (in Burke and McDowell Counties), Lake Rhodhiss (between Burke and Caldwell Counties), and Lake Hickory, located along the southern edge of Alexander County and the southeastern tip of Caldwell County. In addition, the headwaters of Lookout Shoals Lake begins just downstream from Oxford Dam which impounds Lake Hickory.

The Duke Power Company, Charlotte, North Carolina, which owns the lakes and 7,375 acres of adjacent shoreline property, invites widespread recreational use of these recreational areas. Unfortunately, this use is accompanied by indiscriminant littering and dumping of solid waste. Moreover, between 500 and 1,000 permanent residents living near the recreational areas persistently dump their household refuse on Duke Power Company property.

Statistics concerning the annual number of day-use and overnight visits to Lakes James, Rhodhiss, and Hickory were furnished by Duke Power Company and are presented in Table 2. These figures are based on 1968 estimates. In addition, private cottages are situated along the lake shoreline as follows: Lake Rhodhiss--15 cottages, Lake Hickory--500 cottages, Lake James--62 cottages.

The quantity of refuse generated at each recreational area was computed using solid waste generation rates of 0.96 pounds/visitor-day for day-use visits, 1.26 pounds/camper-day for overnight visits, and 2.13 pounds/occupant-day for private cottages for which 40 occupant-days/year was assumed. The resulting solid waste quantities are listed in Table 3. The distribution of solid waste according to counties and

TABLE 2
EXTENT OF RECREATIONAL USE OF DUKE POWER COMPANY PROPERTY

Recreational Area	No. Day-use Visits		No Overnight	Visits
	Annual Visits	Av. Peak	Annual Visits	Av. Peak
	Weekend Day		Weekend Day	
	Visitor-days/yr	Visitor-days/ day	Camper-days/yr	Camper-days/day
Lake Rhodhiss	257,000	3,400	8,000	100
Lake Hickory*	706,000	9,600	226,000	2,900
Lake James	292,000	4,700	37,000	500

* Approximately one-half of these visits occurred in Catawba County.

TABLE 3

SOLID WASTE GENERATED AT
LAKES RHODHISS, HICKORY, AND JAMES BY RECREATIONAL USERS
IN EASTERN APPALACHIA REGION

Average Amounts of Solid Waste Generated by Sources

Recreational Area	Day-Use Visits tons/yr	Overnight Visits tons/yr	Private Cottages tons/yr	Total tons/yr
Lake Rhodhiss	123	5	4	132
Lake Hickory*	169	71	64	304
Lake James	188	23	16	227

* The solid waste produced by recreational users in Catawba County, assumed to be one-half the total amount from the Lake Hickory recreational area, is not included.

townships within the four-county region was subjectively determined on the basis of locations of access roads, access areas and cottages surrounding the lakes. The results of this recreational waste allocation was expressed in terms of tons/year and rural population equivalents (2.0 pounds/capita/day) in Table 4.

The overall impact of 663 tons/year of recreational solid waste being generated on Duke Power Company property within the study area is equivalent to 1,811 permanent residents living on the land. From the standpoint of solid waste disposal operations at regional sanitary landfills, this quantity of waste is negligible. However, it represents a significant amount when considering the capacity requirements of the proposed rural bulk-container solid waste collection system, as will be seen later.

Existing Disposal Sites

The four-county region under investigation contains twenty-four general use land disposal sites of which all except one (Lenoir) are open burning dumps. The quantity of solid waste received at each site, as determined from the 1968 North Carolina survey of solid waste management practices, and the site ownership is presented in Table 5. The fold-out map of Figure 6 shows the locations of each site listed in Table 5.

In addition to the general-use land disposal sites, a 1969 survey performed by county sanitarians revealed that at least 325 promiscuous dumps are located along roads and highways in the region. The quantity of solid waste received at these dump sites was indeterminable.

TABLE 4

ALLOCATION OF RECREATIONAL SOLID WASTE
ACCORDING TO COUNTIES AND TOWNSHIPS BORDERING
DUKE POWER COMPANY LAKES

County & Township	Township No*	Name of Recreation Area	Estimated Percent of Solid Waste from Recrea- tion Areas %	Solid Waste Quantity Allocated tons/yr	Rural Population Equivalents persons/yr
<u>Alexander County</u>					
Wittenburg Twp.	7	Lake Hickory	85	258	705
<u>Burke County</u>					
Linville Twp.	13	Lake James	80	182	498
Smoky Creek Twp.	4	Lake Rhodhiss	10	13.2	36
Drexel Twp.	5	Lake Rhodhiss	10	13.2	36
Lovelady Twp.	6	Lake Rhodhiss	10	13.2	36
Icard Twp.	7	Lake Rhodhiss	10	13.2	36
<u>Caldwell County</u>					
N. Catawba Twp.	11	Lake Rhodhiss	30	39.5	108
Lovelady Twp.	13	Lake Rhodhiss	30	39.5	108
Lovelady Twp.	13	Lake Hickory	15	46.0	125
<u>McDowell County</u>					
Nebo Twp.	2	Lake James	20	45.0	123
			Total	662.8	1811

* Township numbers correspond to those in Figures 1, 2, 3 & 4.

TABLE 5

EXISTING GENERAL USE LAND DISPOSAL SITES
IN THE EASTERN APPALACHIA HEALTH REGION

Name of Land Disposal Site	Annual Quantity of Solid Waste Delivered To Site Tons/yr	Type of Site Ownership	
		Public	Private
1. Old Fort	679	x	
2. Little Switzerland	87	x	
3. Marion	20,043	x	
4. Linville Falls	9	x	
5. Dysartsville Comm.	457	x	
6. Glen Alpine	130	x	
7. Morganton	25,740	x	
8. Drexel	651	x	
9. Valdese	725	x	
10. Hilton's Refuse Disp.	3,536		x
11. Granite Falls	9,360	x	
12. Rhodhiss	1,872	x	
13. Hildebran	3,015	x	
14. Henry River Comm.	1,350	x	
15. Bristol Creek Comm.	407	x	
16. Anderson Refuse Disp.	467		x
17. Skew Refuse Disp.	416		x
18. Lenoir	38,835	x	
19. Garner Refuse Disp.	1,092		x
20. Chester Refuse Disp.	624		x
21. Blowing Rock	3,239*	x	
22. Walsh Refuse Disp.	3,120		x
23. Sanitary Pick-up Service	18,720		x
24. Taylorsville	6,240	x	
Totals	137,575	17	7

* This refuse is collected in Wataugh County

Figure 6

Locations of the 24 Existing General
Use Land Disposal Sites in the Eastern
Appalachian Region. Disposal Site
Numbers Refer to Table 5 .

Existing Solid Waste Collection Systems

Municipalities operating public solid waste collection systems are identified in Table 6. Detailed information concerning the crew sizes, type of collection service performed, collection frequencies, and collection costs are unavailable. The capacities of the vehicles listed in Table 6 are known to range from 14-18 cubic yards each (except for a single 25 cubic yard compactor truck), so that an average capacity of 16 cubic yards per vehicle was assumed in the transportation cost analysis which follows.

No information related to the number or service areas of private solid waste collection agencies in the Eastern Appalachia region could be obtained. From the state survey, however, it is known that approximately 60,000 residents and most industries are served by private collection.

Analysis of Solid Waste Management System Alternatives

The solid waste management practices prevailing in Burke, Caldwell, Alexander, and McDowell Counties are clearly unacceptable. The twenty-three general-use burning dumps and the hundreds of illegal roadside dumps in existence present public health menaces, real or potential air and water pollution problems, and are wasteful of land. Probably the major factor causing the proliferation of dumps has been the lack of refuse collection service to many residents. Within the next few years, these dump sites would almost certainly be closed by action of the North Carolina State Health Department, at which time the

TABLE 6

MUNICIPALITIES WITH PUBLIC SOLID WASTE COLLECTION SYSTEMS

Municipality	County	1960 Population	<u>No. of Collection Vehicles</u>	
			Compactor Trucks	Non-Compactor Trucks
Taylorsville	Alexander	1,470	3	1
Morganton	Burke	9,186	3	3
Valdese	Burke	2,941	2	1
Drexel	Burke	1,146	1	1
Glen Alpine	Burke	734	1	1
Hildebran	Burke	518	1	1
Lenoir	Caldwell	10,257	3	2
Granite Falls	Caldwell	2,644	1	2
Hudson	Caldwell	1,536	1	1
Marion	McDowell	3,345	2	2
Old Fort	McDowell	787	1	1

municipalities and/or counties in the Eastern Appalachia Health Region would be forced to provide acceptable disposal systems. To prevent the haphazard and uneconomical development of sanitary landfills in the future, a regional solid waste management plan encompassing all residents of the Eastern Appalachia Health Region was developed and analyzed in the following pages.

Several alternative regionalization schemes and disposal systems were considered and subjected to economic analysis. The purpose of this analysis was to determine that number and location of sanitary landfills which would minimize the combined cost of (a) operating a regional sanitary landfill system, and (b) transporting solid waste from source to disposal site. Based on the economic analysis along with political and other considerations, a regional solid waste management plan was finally selected for implementation.

Technical Approach

In performing the economic study, the number of sanitary landfills assumed for the four-county region were one, three, four, and five. For each number of landfill sites assumed, the townships (which were the smallest population subdivisions available) were grouped into subregions, each possessing its own sanitary landfill. Criteria for forming regions were township populations, population distribution as evidenced on land use maps, and access over all weather roads. Within each subregion, the optimum location for a land disposal site was determined by the trial-and-error process of minimizing the number of people-miles (i.e. the product of population and travel distance) between township

population centroids and assumed landfill locations. After the sanitary landfill locations had been pinpointed in this manner, the cost of transporting solid waste from each township to the disposal site was computed for various methods of transportation, including a rural bulk collection system. The sum of the transportation cost to townships was the total transportation cost for the region.

Then, based on the subregion populations and the solid waste generation rates reported earlier, the size, personnel and equipment requirements, and operating cost of a sanitary landfill in each subregion were determined. The cost to the regional project of administering and operating the sanitary landfill system was found by summing the costs for the subregional landfills. Finally, the unit costs (cost per ton) of solid waste transportation and disposal were combined to yield the minimum cost solution alternative.

Analysis of Sanitary Landfill Operating Costs

The total cost to the four-county Eastern Appalachia region of operating a system of sanitary landfills was divided into the following three components:

- a. Annual project fixed costs that are not related to the number of sanitary landfills.
- b. Annual fixed costs at each sanitary landfill that are independent of landfill size and number.
- c. Annual size-related costs, i.e. land and equipment costs, at each sanitary landfill.

These three components are discussed separately below.

Project Fixed Costs

The fixed costs to the regional project that are independent of the number of sanitary landfills include salaries of the project director and office staff, office supplies, engineering consultant services, and travel of the project director. The cost of closing and rehabilitating the 24 existing general-use land disposal sites was also included. A summary of the project fixed costs is contained in Table 7.

The fixed cost items at each sanitary landfill site include personnel-related costs, utilities, access roads, fences, signs, and mechanical supplies. Each of these costs, which are listed in Table 8, is assumed to be unrelated to the number or size of sanitary landfills selected. To the extent that this assumption is violated in actuality, such as for site fencing, it is hoped that a sufficient allowance has been made in Table 8. The sum of the costs in Table 8 (\$14,973/year) should be multiplied by the number of sites to be installed in the four-county region to yield the total annual cost for non-size-related expenditures.

Capital costs are depreciated by the straight line method using a maximum life of 10 years since the sanitary landfills will be sized for a 10-year capacity. Longer periods of depreciation could be justified if the sanitary landfill sites actually purchased have sufficient capacities.

Size-Related Costs for One-Landfill Alternative

The procedure for determining the sanitary landfill operating costs that are related to landfill size is herein illustrated in detail for

TABLE 7

ANNUAL PROJECT FIXED COSTS THAT ARE INDEPENDENT
OF NUMBER OF SANITARY LANDFILLS

Cost Item	Number or Quantity	Unit Price	Initial Cost \$	Estimated Life Years	Annual Cost \$/Year
1. Program Director	1	\$12,000/yr	--	--	\$12,000
2. Fringe Benefits of Director @ 15%	1	1,800/yr	--	--	1,800
3. Administrative Services (Secretarial)	1	2,000/yr	--	--	2,000
4. Office Supplies	--	--	--	--	500
5. Audiovisual Equipment	--	--	300	10	30
6. Travel of Program Director	--	--	--	--	1,800
7. Pickup Truck	1	2,800	2,800	5	560
8. Consultant Services	--	--	5,000	10	500
9. Rehabilitation of Existing Dumps	24	750	18,000	10	1,800
Total					\$20,990/yr

TABLE 8

ANNUAL COST OF NON-SIZE RELATED ITEMS
AT EACH SANITARY LANDFILL

Item of Cost	Number or Quantity	Unit Price	Initial Cost \$	Estimated Life Years	Annual Cost \$/Year
1. Salary of Landfill Operator	1	\$ 6,000	--	--	\$ 6,000
2. Salary of Asst. Operator	1	4,800	--	--	4,800
3. Fringe Benefits of Landfill Employees at 15%	2	1,620	--	--	1,620
4. Sanitary Facilities	--	--	\$ 1,250	10	125
5. Utilities & Telephone	--	--	--	--	500
6. Mobile Office Trailer	1	4,000	4,000	10	400
7. Fencing and Signs	--	--	2,250	10	225
8. Personnel Training, including travel	2	300	600	4	150
9. Uniform Rental	2	120	--	--	240
10. Tools and Mechanical Supplies	--	--	500	4	125
11. Access Roads	1/4 mi	35,000/mi	7,875	10	788
Total					\$14,973

the one-landfill alternative. The same procedure was followed in determining these costs for systems involving a greater number of landfills.

Sanitary landfill operating costs typically decrease with increasing landfill size (2). Therefore, a solid waste management system involving only one landfill in the four-county region would be expected to reflect the least possible landfill operating cost, although transportation costs would be greatest for this alternative.

Regardless of its location, a single sanitary landfill for Eastern Appalachia would have to handle the total waste tonnage from the design population (average of 1970 and 1980 populations) of 166,728 residents producing a total of 153,400 tons/year of solid waste. Assuming a compacted solid waste density of 750 pounds/cubic yard (0.375 tons/cubic yard) in the completed landfill and a compacted cover material to refuse ratio of 1:5 (volume basis) the design rate of utilization of landfill volume V_f can be computed as follows:

$$\begin{aligned} V_f &= \left(\frac{\text{Annual weight of solid waste}}{\text{Compacted solid waste density}} \right) \\ &\quad \times \left(\frac{\text{Volume of refuse and cover material}}{\text{Volume of refuse}} \right) \quad (1) \\ &= (153,400 \text{ tons/year}) (1.20) / (0.375 \text{ tons/cubic yard}) \\ V_f &= 491,000 \text{ cubic yards/year, or } \underline{\underline{304 \text{ acre-ft/year}}} \end{aligned}$$

The landfill surface area actually utilized, A_f , can be computed from the following relationship:

$$A_f = V_f Y / D \quad (2)$$

where Y = design life of the landfill site, years

D = design or average depth of the sanitary landfill (solid waste plus cover material), feet.

However, a larger site area than that given by equation (2) must be purchased to allow space for roads, fences, and facilities. Knowing the efficiency of site utilization, the actual site area to be purchased is:

$$A_s = A_f / E_s = \sqrt[3]{Y / E_s D} \quad (3)$$

in which A_s = actual site area required, acres

E_s = efficiency of site utilization.

Assuming a design life of $Y = 10$ years, design depth of $D = 15$ feet, and a site utilization efficiency of $E_s = 0.85$, along with the design utilization rate of 304 acre-feet/year, equation (3) yields a site area of 240 acres which the Eastern Appalachia region would have to purchase to accommodate the region's solid waste. For cost estimation purposes, land costs of \$500/acre and site preparation costs of \$175/acre have been assumed throughout.

Now, the average solid waste generation rate of 5.05 pounds/capita/day amounts to 420 tons/day to be received at the landfill. Assuming the landfill is operated five days per week, the average landfill operating rate becomes:

$$R = (7/5) (420 \text{ tons/day}) = 588 \text{ tons/day.}$$

Landfill equipment capabilities must be adequate to handle peak loads in excess of 588 tons/day.

The sanitary landfill equipment considered for the one-landfill alternative was as follows: one Allis-Chalmers 21G crawler loader and one Allis-Chalmers HD 21 dozer*. Machinery with comparable capabilities can be obtained from other manufacturers. From the

*Mention of commercial products does not imply endorsement by the U.S. Public Health Service.

manufacturer's commercial literature, a combined maximum solid waste handling rate of 100 tons/hour was deduced. Assuming this equipment is operated at 75% of its maximum capability, average daily equipment operating time will be as follows:

$$\frac{588 \text{ tons/day}}{75 \text{ tons/hr}} = 7.84 \text{ hours/day or } \underline{8.0 \text{ hours/day}}$$

Accordingly, the total annual equipment operating time will be:

$$2(8 \text{ hours/day}) (5 \text{ days/week}) (52 \text{ weeks/year}) = \underline{4,160 \text{ hours/year.}}$$

According to two sanitary landfill equipment manufacturers, the hourly equipment operating cost for sanitary landfill applications is approximately 0.020-.025 percent of the total initial price of the machine. This value includes fuel, lubrication, maintenance, repairs, insurance, and taxes but excludes depreciation and labor. Therefore, the hourly operating cost for both the HD 21 dozer and the 21 G crawler loader would be \$20/hour, and the total annual cost of equipment operation would become:

$$(4,160 \text{ hours/year}) (\$20/\text{hour}) = \underline{\$83,200/\text{year}}$$

The size-related operating costs for the alternative disposal system involving one sanitary landfill are summarized in Table 9. Combining the annual cost in Table 9 with the total cost figures in Tables 7 and 8 yields the total annual project cost of \$167,363/year; or a unit cost of \$1.09/ton based on the design solid waste quantity of 153,400 tons/year.

Size-Related Costs of Three Landfill Alternative

For a regional solid waste disposal system involving three sanitary landfills, the four-county region was divided into the three subregions

TABLE 9

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
INVOLVING ONE SANITARY LANDFILL

Items	No. or Quantity	Unit Price	Initial Cost \$	Estimated Life Yrs.	Annual Cost \$/yr.
1. Land	240 acres	\$500/ac	\$120,000	10	\$12,000
2. Site Preparation	240 acres	\$175/ac	42,000	10	4,200
3. Landfill Equipment (AC 21G Loader) (AC HD21 Dozer)	2	\$80,000	160,000	5	32,000
4. Equipment Owning & Operating Cost	4160 hrs.	\$20.00/hr.			83,200
Total			\$322,000	-	\$131,400

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which were defined as follows: Subregion I included all of McDowell County and townships No. 1, 10, and 13 of Burke County (see Figure 1 and 2). Subregion III encompassed all of Alexander County and townships No. 6 and 13 of Caldwell County (Figures 3 and 4). Subregion II included the remainder of Burke and Caldwell Counties.

For Subregion I, a design landfill utilization rate of $\sqrt{f} = 62.9$ acre-feet year was computed from equation (1), based on the average population for the 1970-80 design period and the average solid waste generation rate of 0.920 tons/year/capita. Assuming values of $Y = 10$ years, $D = 15$ feet, and $E_s = 0.85$ in equation (3), the areal size of the sanitary landfill site for McDowell and Western Burke Counties would be about 50 acres. The design landfill operating rate, based on a five-day per week operation, would be $R = 122$ tons/day. This solid waste loading rate would be effectively handled by an Allis-Chalmers 7G crawler loader (maximum capability of 20 tons/hour; design capability of 15 tons/hour) working an average of $8 \frac{1}{4}$ hours/day or 2,140 hours/year. The hourly equipment owning and operating cost for this machine would be about 0.025 percent of \$30,000 or \$7.50/hour. A summary of the size-related landfill operating costs for Subregion I is contained in Table 10.

For Subregion II, the following values were obtained using the same assumptions as for Subregion I:

$$\sqrt{f} = 183 \text{ acre-feet/year}$$

$$A_s = 145 \text{ acres}$$

$$\text{Design Operating Rate, } R = 354 \text{ tons/day.}$$

TABLE 10

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
INVOLVING THREE SANITARY LANDFILLS--
MC DOWELL AND WESTERN BURKE COUNTY LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	50 acres	\$500/acre	\$25,000	10	\$2,500
2. Site Preparation	50 acres	175/acre	8,750	10	875
3. Landfill Equipment (AC 7G Loader)	1	30,000	\$30,000	5	6,000
4. Equipment Owning and Operating Cost.	2,140 hrs/yr	7.50/hr	--	--	16,040
Total			\$63,750	--	\$25,415

TABLE 11

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
INVOLVING THREE SANITARY LANDFILLS---
BURKE AND CALDWELL COUNTY LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	145 acres	\$500/acre	\$72,500	10	\$7,250
2. Site Preparation	145 acres	175/acre	25,400	10	2,540
3. Landfill Equipment (AC 21G Loader)	1	80,000	80,000	5	16,000
4. Equipment Owning and Operating Cost	2,450 hrs/yr	20.00/hr	--	--	49,000
Total			\$177,900	--	\$74,790

After several trials at selecting equipment, a single 21 G crawler loader was determined more economical than smaller machines. Operated at 75 percent of its maximum capacity, this machine would be utilized an average of 9.5 hours/day or 2,450 hours/year. The size-related landfill costs for Subregion II are summarized in Table 11.

Based on a value of $\sqrt{f} = 58.4 \frac{\text{acre-feet}}{\text{year}}$, $A_s = 50$ acres, and $R = 113$ tons/day, a 7G crawler loader was selected for the landfill in Subregion III. With a design refuse handling capacity of 15 tons/day, this machine would have to be operated $7 \frac{3}{4}$ hours/day or 2,020 hours/year to properly compact and cover the solid waste received. The size-related landfill cost for this subregion are shown in Table 12.

From Tables 10, 11, and 12, the total annual expenditures for size-related items for the three-landfill alternative would be \$124,720/year. Combining this figure with the non-size related landfill costs (Table 8) and the annual project fixed cost (Table 7) gives a total annual project cost of \$190,629/year, or \$1.24/ton of solid waste.

Size-Related Costs of the Four-Landfill Alternative

In determining the annual costs for a regional system involving four sanitary landfills, the subregion boundaries were defined as being identical to the county borders, for the following reasons. First, the county population centers, and hence the solid waste generation centers, lay near the county seats of each county as will be seen in a later analysis. The sanitary landfill should be

TABLE 12

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
 INVOLVING THREE SANITARY LANDFILLS--
 ALEXANDER AND EASTERN CALDWELL COUNTY LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Year	Annual Cost \$/Year
1. Land	50 acres	\$500/acre	\$25,000	10	\$2,500
2. Site Preparation	50 acres	\$175/acre	8,750	10	875
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning and Operating Cost	2,020 hrs/yr	\$7.50/hr	--	--	15,140
Total			\$63,750	--	\$24,515

located as closely as possible to the population centers. Secondly, the county seats appear to form the highway transportation hubs of their respective counties. Furthermore, political and public support for the project can be expected to be greater if known legal boundaries also serve as the solid waste subregion boundaries. If the regional authority which will control the solid waste management system were to dissolve, each county would thereby be left with a sanitary landfill already in operation.

For McDowell, Burke, Caldwell, and Alexander Counties, the design landfill utilization rates V_f were computed from equation (1) as 51.2, 109.2, 107.2, and 36.6 acre-feet/year, respectively. Using these values of V_f , the relationship between the design landfill depth (D), design site life (Y), and the site surface area actually landfilled (A_f) was plotted for each county in Figures 7, 8, 9, and 10. Then, using the values of A_f obtained from the figures, the site areas which should be purchased A_s were determined from Figure 11 for various values of site utilization efficiency, E_s .

In determining the landfill machinery requirements for Burke and Caldwell Counties, three alternatives were considered. The first alternative involved providing each county with a 12 G crawler loader, which would operate an average of 9-9 1/2 hours per day. In case of equipment breakdown and/or during periods of peak solid waste receipts, the refuse could not be compacted properly nor covered daily. Under these conditions, the refuse would most likely accumulate, creating unacceptable operating and health conditions.

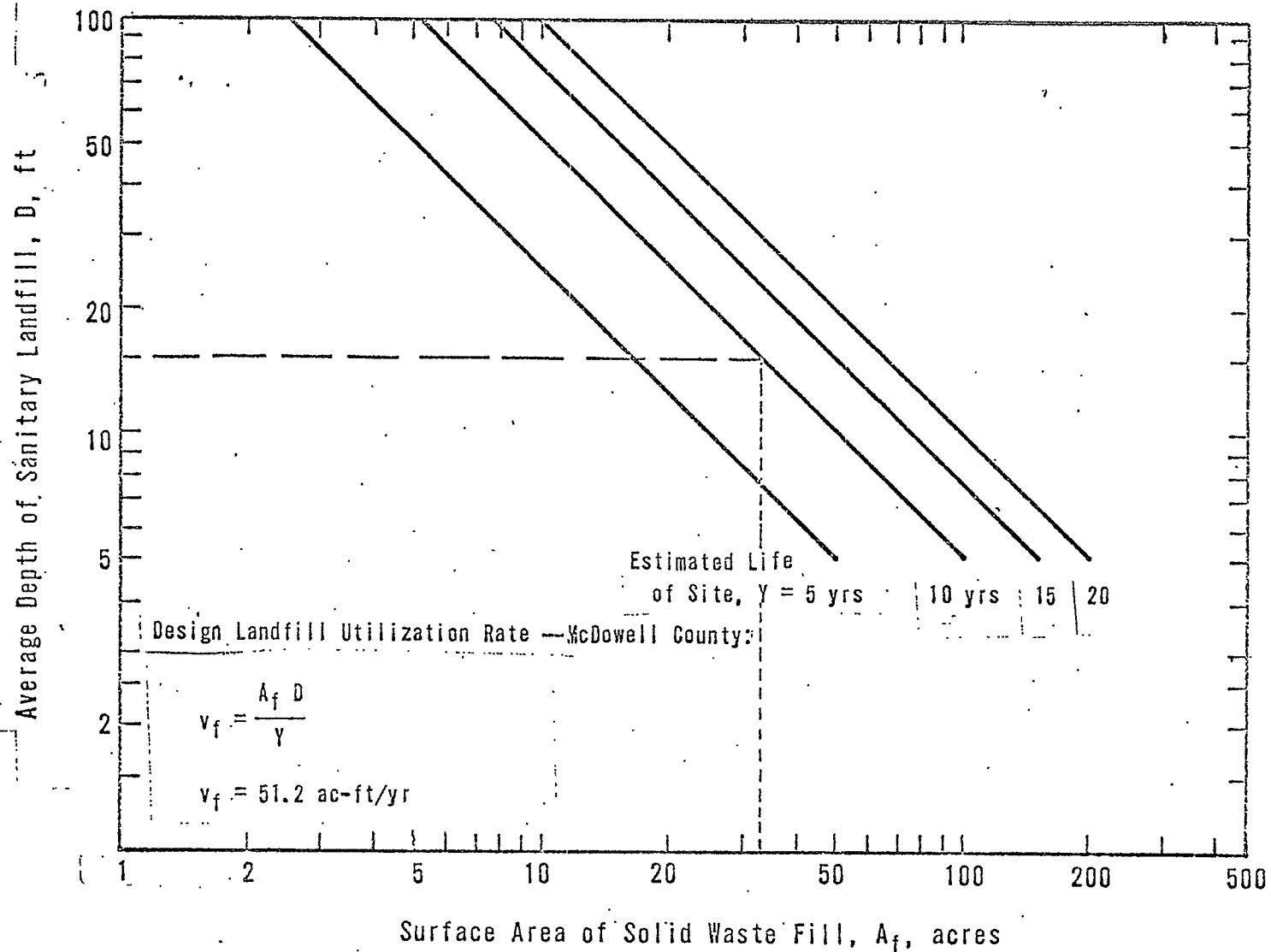


Figure 4. Relationship between design landfill depth (solid waste and cover material), design life of site, and surface area of solid waste fill for the McDowell County sanitary landfill, four — landfill regional disposal system.

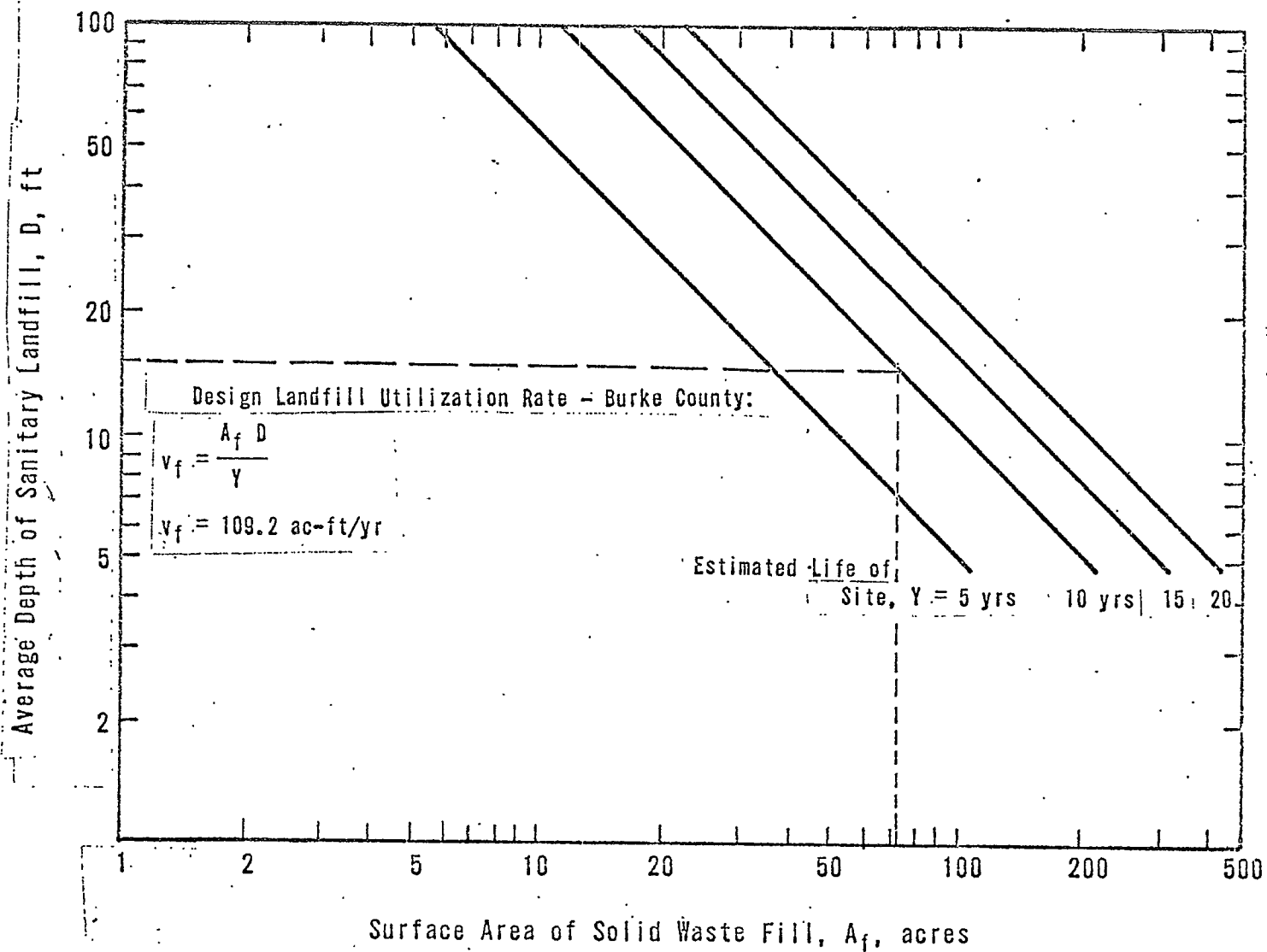


Figure 2. Relationship between design landfill depth (solid waste & cover material), design life of site, and surface area of solid waste fill for the Burke County sanitary landfill, four — landfill regional disposal system.

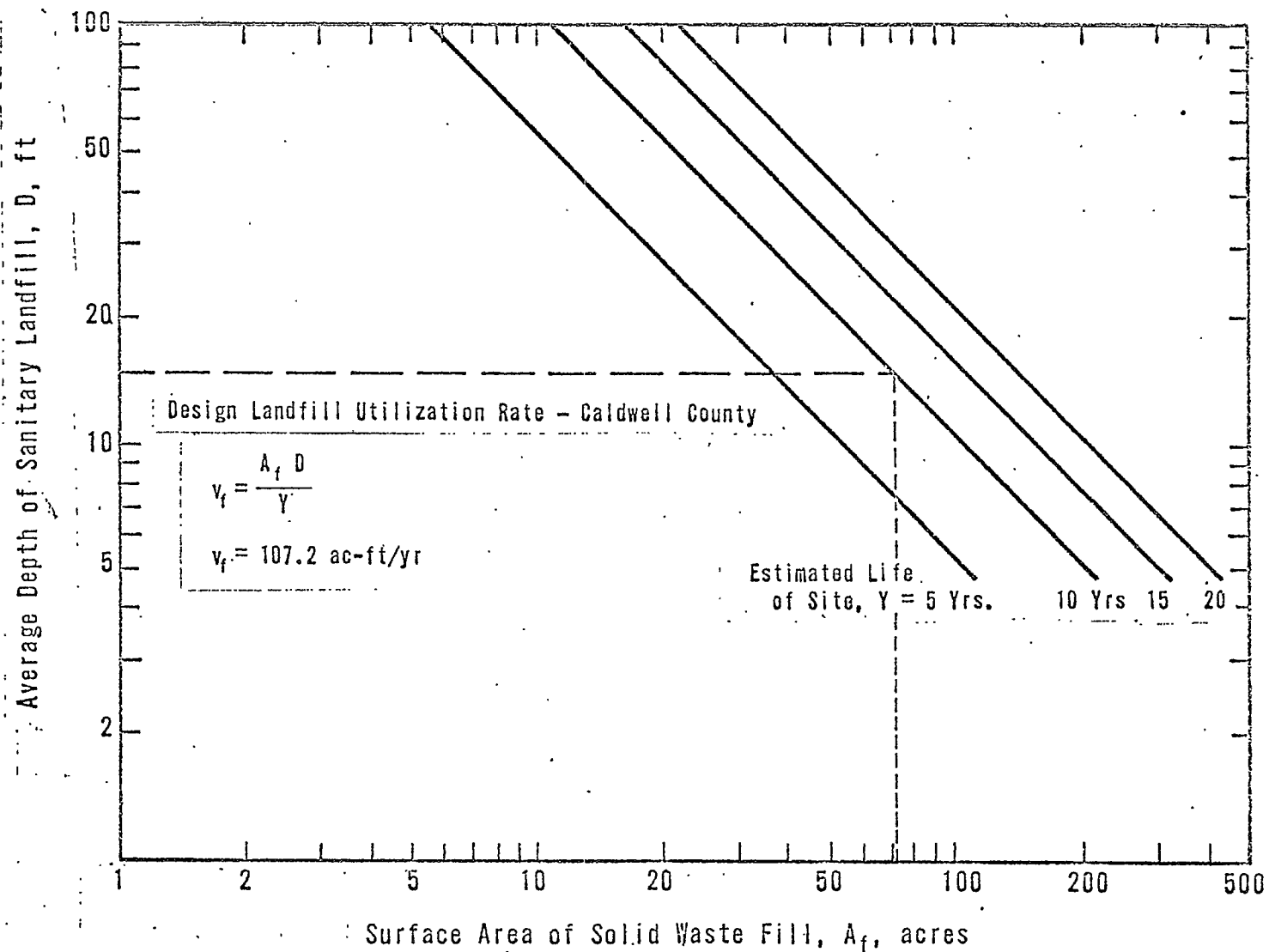


Figure 3. Relationship between design landfill depth (solid waste and cover material), design life of site, and surface area of solid waste fill for the Caldwell County sanitary landfill, four — landfill regional disposal system.

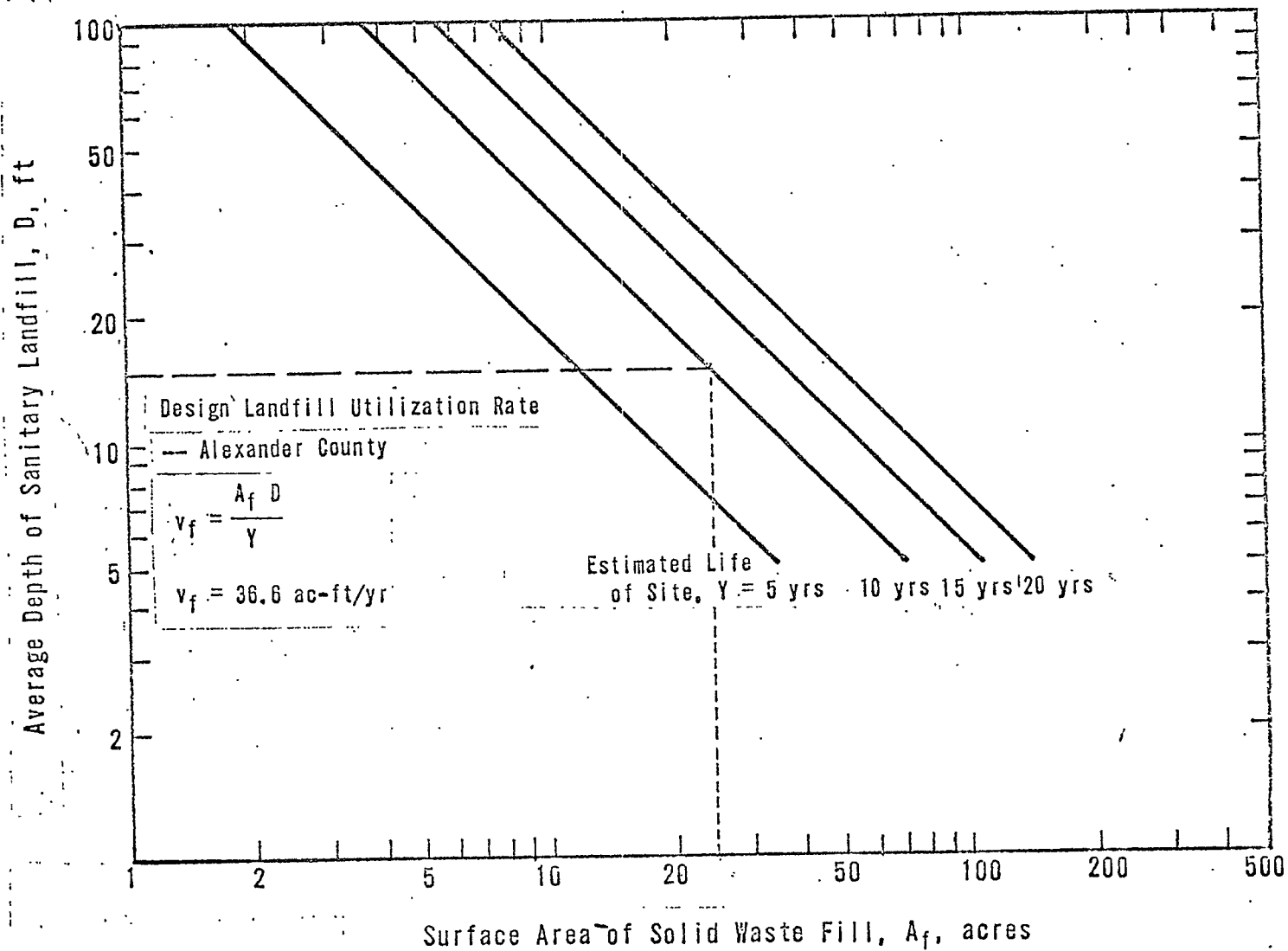


Figure 1. Relationship between design landfill depth (solid waste and cover material), design life of site, and surface area of solid waste fill for the Alexander County sanitary landfill, four — landfill regional disposal system.

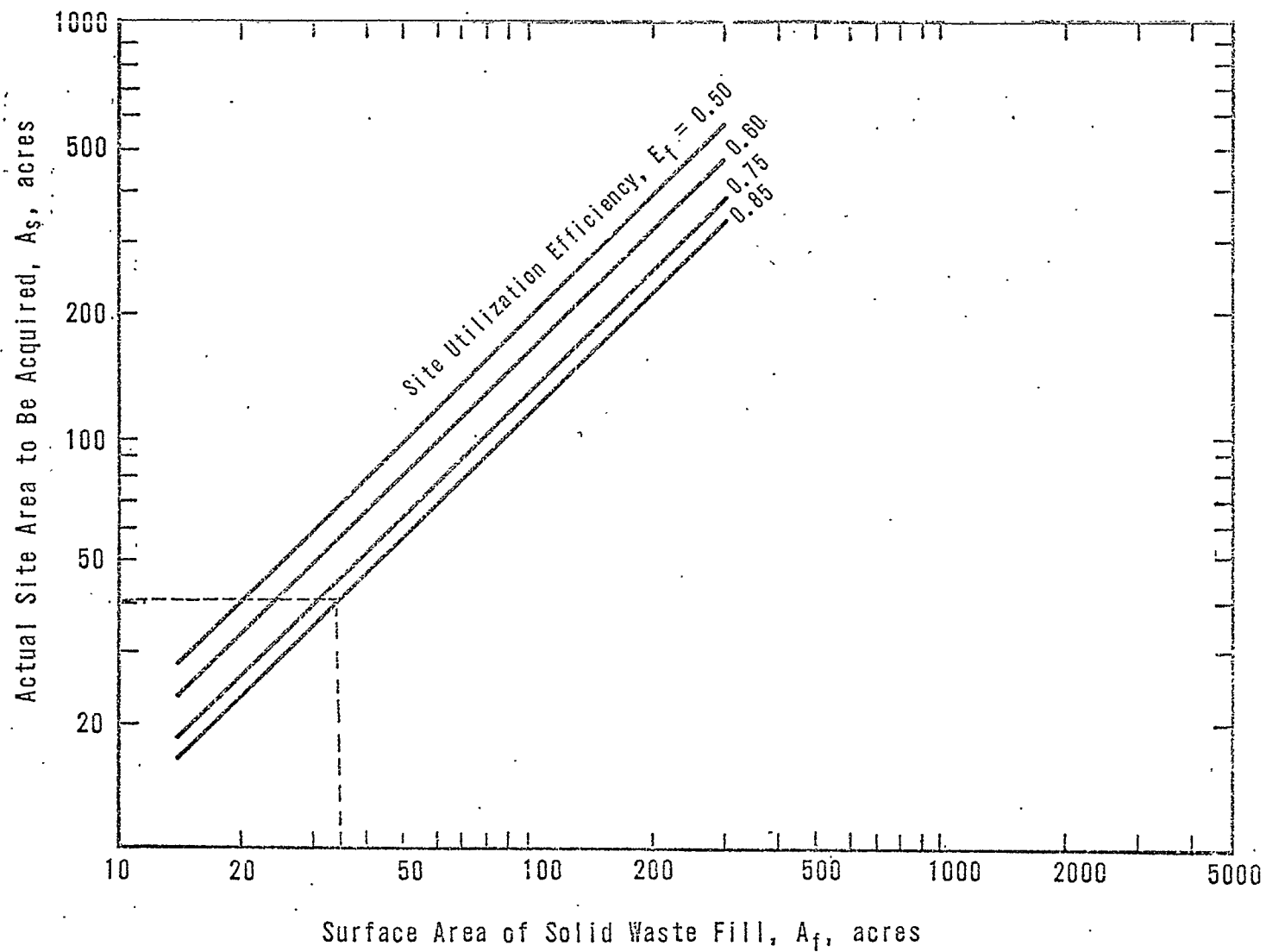


Figure 11. Graphical relationship between the surface area landfilled with solid waste and the overall site area to be actually acquired.

The second alternative involved providing a third 12 G crawler loader to be transported between the two landfills as needed. Assuming an equipment reliability of 90% for the other two machines, the third crawler loader would be operated about 500 hours/year. Allowing \$300/year for hauling costs, this extra machine would add \$15,750/year to the project's operating budget.

The third and most practicable alternative for both the Burke and Caldwell County sanitary landfills. These two units would be operated an average of only 5 3/4 hours/day and would save the regional project approximately \$3,000/year over the second alternative mentioned above.

The equipment and land requirements for the four-sanitary landfill alternative are summarized in Table 13. The size-related landfill costs are listed for each sanitary landfill in Tables 14, 15, 16, and 17. The total size-related costs for the project is \$143,086/year. Combining this figure with the annual project fixed cost of \$20,990/year (Table 7) and the non-size-related cost from Table 8 of:

4 landfills x \$14,973/year/landfill = \$59,892/year
yields the total annual sanitary landfill system operating cost of \$223,968/year. This operating cost is equivalent to \$1.46/ton or \$1.34/person/year.

Size-Related Costs for the Five-Landfill Alternative System

Annual costs to the four-county region for operating a system of five sanitary landfills were computed in the previously described manner.

TABLE 13

LAND AND EQUIPMENT REQUIREMENTS FOR FOUR-SANITARY LANDFILL SYSTEM

County & Sanitary Landfill	Design Site Utilization Rate, v_f ac-ft/yr ^f	Surface Area of Solid Waste Fill, A_f acres	Approx. Site Area to be Acquired, A_s Acres	Design Landfill Operating Rate, R (5-day week) tons/day	Type of Sanitary Landfill Equip- ment selected	Design Capability of Landfill Equipment (75% of max.) tons/hr.	Equipment Operating Time	
							Daily hrs/day	Annual hrs/yr
McDowell Co.	51.2	34.2	45	98.9	7G Crawler Loader	15	6.75	1755
Burke Co.	109.2	72.9	90	212	21G Crawler Loader	37.5	5.75	1495
Caldwell Co.	107.2	71.5	85	208	21G Crawler Loader	37.5	5.75	1495
Alexander Co.	36.6	24.4	30	70.4	7G Crawler Loader	15	4.75	1235

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TABLE 14

SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FOUR SANITARY LANDFILLS---
MC DOWELL COUNTY SANITARY LANDFILL

Item	Number or Quantity	Unit Cost	Initial Cost	Estimated Life	Annual Cost \$/yr
1. Land	45 ac.	\$500/ac	\$22,500	10	\$2,250
2. Site Preparation	45 ac.	175/ac	7,875	10	788
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning & Operating Cost	1755 hrs/ yr	7.50/hr.	-	-	13,150
Total			\$60,375	-	21,188

TABLE 15

SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FOUR SANITARY LANDFILLS---
BURKE COUNTY SANITARY LANDFILL

Item	Number or Quantity	Unit Cost	Total Initial Cost	Estimated Life Yrs.	Annual Cost \$/yr
1. Land	90 ac.	\$500/ac.	\$45,000	10	\$4,500
2. Site Preparation	90 ac.	175/ac.	15,750	10	1,575
3. Landfill Equipment (AC 21G Loader)	1	80,000	80,000	5	16,000
4. Equipment Owning & Operating Cost	1495 hrs/yr	20.00/hr.	-	-	29,900
Total			\$140,750	-	\$51,975

TABLE 16

SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FOUR SANITARY LANDFILLS--
CALDWELL COUNTY SANITARY LANDFILL

Item	Number or Quantity	Unit Price	Total Initial Cost	Estimated Life Yrs.	Annual Cost \$/Yr
1. Land	85 ac.	\$500/ac.	\$42,500	10	\$4,250
2. Site Preparation	85 ac.	175/ac.	14,875	10	1,488
3. Landfill Equipment (AC21G Loader)	1	80,000	80,000	5	16,000
4. Equipment, Owning & Operating Cost	1495 hrs/ yr	20.00/hr.	-	-	29,900
Total			\$137,375	-	\$51,638

TABLE 17

SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FOUR SANITARY LANDFILLS--
ALEXANDER COUNTY SANITARY LANDFILL

Item	Number or Quantity	Unit Price	Total Initial Cost	Estimated Life Yrs.	Annual Cost \$/Yr.
1. Land	30 ac.	\$500/ac.	\$15,000	10	\$1,500
2. Site Preparation	30 ac.	175/ac.	5,250	10	525
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning & Operating Cost	1235 hrs/yr	7.50/hr.	-	-	9,260
Total			\$50,250	-	\$17,285

The five subregions were defined in the following table:

Identification of Subregion	Counties & Townships Contained in Subregion *	1970 Population**
I. McDowell County	All of McDowell County & Twp. 13 of Burke County	29,000
II. Central Burke County	Twps. 1, 2, 3, 8, 9, 10, 11, 12 of Burke County	35,800
III. Northern Caldwell County	Twps. 1, 2, 3, 4, 5, 7, 8, 9, 10 of Caldwell County	36,500
IV. Lake Rhodhiss Area	Twps. 4, 5, 6, 7 of Burke County. Twps. 11, 12, 13 of Caldwell County	37,800
V. Alexander County	All of Alexander County & Twp. 6 of Caldwell County	21,000

*Township numbers correspond to those contained in Figures 1, 2, 3, & 4.

**These population figures were obtained by extrapolating 1960 township populations using 1970 county populations.

The land and equipment requirements developed for these subregions are shown in Table 18. The annual costs related to the size of the sanitary landfill are summarized in Tables 19, 20, 21, 22, and 23.

Owing to the long hours of machinery operation in subregion II, III, and IV, an additional unit of landfill equipment should be purchased for backup purposes. Assuming a reliability of 90% for the five 7 G crawler loaders already recommended, a backup machine (7 G) would operate 10 percent of 10,460 hours/year or 1,046 hours/year. Allowing for an annual hauling expense of \$600/year, the total annual cost for this additional machine would be \$14,450/year.

TABLE 18

LAND AND EQUIPMENT REQUIREMENTS FOR FIVE-SANITARY LANDFILL SYSTEM

County & Sanitary Landfill	Design Site Utilization Rate, v_f ac-ft/yr	Surface Area of Solid Waste Fill, A_f acres	Approx. Site Area to be Acquired A_s Acres	Design Landfill Operating Rate, R (5-day week) tons/day	Type of Sanitary Landfill Equip- ment selected	Design Capability of Landfill Equipment (75% of max.) tons/hr.	Equipment Operating Time	
							Daily hrs/day	Annually hrs/yr.
McDowell Co.	53.7	35.6	45	104	7 G Crawler Loader	15	7.0	1820
Central Burke Co.	68.1	45.4	55	132	7 G Crawler Loader	15	9.0	2340
Northern Cald- well Co.	70.1	46.7	55	136	7 G Crawler Loader	15	9.25	2400
Lake Rhodhiss Area	72.5	48.3	60	140	7 G Crawler Loader	15	9.5	2470
Alexander Co.	41.0	27.4	35	79.4	7 G Crawler Loader	15	5.5	1430

TABLE 19

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
INVOLVING FIVE SANITARY LANDFILLS--
MC DOWELL COUNTY LANDFILL

Item	No. of Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	45 acres	\$500/acre	\$22,500	10	\$2,250
2. Site Preparation	45 acres	175/acre	7,875	10	788
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning and Operating Cost	1,820 hrs/yr	7.50/hr	--	--	13,640
Total			\$60,375		\$22,678

TABLE 20

SIZE-RELATED LANDFILL COSTS FOR REGIONAL SYSTEM
INVOLVING FIVE SANITARY LANDFILLS--
CENTRAL BURKE COUNTY LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	55 acres	\$500/acre	\$27,500	10	\$2,750
2. Site Preparation	55 acres	175/acre	9,625	10	963
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning and Operating Cost	2,340 hrs/ yr	7.50/hr	--	--	17,550
Totals			\$67,125	--	\$27,263

TABLE 21
SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FIVE SANITARY LANDFILLS--
NORTHERN CALDWELL COUNTY LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	55 acres	\$500/acre	\$27,500	10	\$2,750
2. Site Preparation	55 acres	175/acre	9,625	10	963
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning and Operating Cost	2,400 hrs/yr	7.50/yr	--	--	18,000
Totals			\$67,125		\$27,713

TABLE 22
SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FIVE SANITARY LANDFILLS--
LAKE RHODISS AREA LANDFILL

Item	No. or Quantity	Unit Price	Total Initial Cost	Estimated Life Years	Annual Cost \$/Year
1. Land	60 acres	\$500/acre	\$30,000	10	3,000
2. Site Preparation	60 acres	175/acre	\$10,500	10	1,050
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6,000
4. Equipment Owning and Operating Cost	2,470 hrs/yr	7.50/hr	--	--	18,520
TOTALS			\$70,500	--	\$28,570

TABLE 23

SIZE-RELATED LANDFILL COSTS FOR REGIONAL
SYSTEM INVOLVING FIVE SANITARY LANDFILLS--
ALEXANDER COUNTY LANDFILL

Item	Number or Quantity	Unit Price	Total Initial Cost	Estimated Life Yrs	Annual Cost \$/Yr
1. Land	35 ac.	\$500/ac	\$17,500	10	\$1750
2. Site Preparation	35 ac.	175/ac	6,125	10	613
3. Landfill Equipment (AC 7G Loader)	1	30,000	30,000	5	6000
4. Equipment Owning & Operating Cost	1430 hrs/yr	7.50/hr	-	-	10730
Total			\$53,625	-	\$19,093

The total annual system operating cost for the five-sanitary landfill alternative, obtained by summing the total costs from Tables 7, 8, and 19 through 23, was \$235,622/year or \$1.54/ton. An even higher sanitary landfill system operating cost would undoubtedly result if more landfills were added.

Solid Waste Transportation Costs

In addition to the sanitary landfill system operating costs just presented, selection of the optimum number and locations of sanitary landfills for the Eastern Appalchia region was based on the considerations of the cost of transporting solid waste from origin to disposal. The procedure for calculating the regional solid waste transportation costs for a given population distribution and sanitary landfill system alternative consisted of these steps;

1. Designation of a trial disposal site location within each subregion.
2. Summation of the annual distance of solid waste transportation from source centroid to the assumed disposal site location.
3. Computation of the total annual transportation cost from the accumulated travel distance and unit haul costs for selected vehicle types.

Using the above procedure the solid waste transportation costs to the Eastern Appalchia region residents were computed for these situations:

1. Theoretical situation in which all householders haul their own solid waste.
2. Present situation in which organized collection is provided to 90-95,000 residents, while the remaining 60,000 residents transport their own waste.
3. Proposed system utilizing present municipal and private collection services but providing rural bulk containerized collection service to 60,000 rural residents.

This method of analysis requires information from the smallest complete census tracts available be used. The census tracts used in this transportation cost study were townships. The 1960 population figures for townships were used in computing the accumulated annual haul distances because 1970 township populations were not available. However, the average cost per ton or per resident would not differ appreciably between the two census years unless a marked change in population distribution for the four-county region had occurred.

Location of Sanitary Landfills

For each number of regional sanitary landfills assumed for the transportation cost analysis (i.e., one, three, four, and five landfills), the boundaries of the subregions or "solid waste shed areas" defined previously were retained. Within each subregion, the optimum location of the sanitary landfill was approximately determined by minimizing, for several assumed landfill locations, the following function:

$$\sum_i \frac{P_i x_i}{P}$$

where P = total population in the solid waste shed area

p_i = population of the i^{th} township in the subregion

x_i = actual travel distance from the township population
centroid to the assumed landfill location, miles

In effect, the landfill location which produced the least valued total of the township centroid-to-disposal distances, weighted according to township population, was taken as the optimum landfill location.

The sanitary landfill sites obtained with this procedure usually lay within or near the city limits of the major city within each subregion, as shown on the foldout map of Figure 12. The actual landfill sites selected should be located as near as possible to the optimum locations. Actual site selection and design of the sanitary landfills will require a separate, detailed study and is beyond the scope of the present study. Land disposal site locations are governed by the Sanitary Engineering Division, North Carolina State Board of Health.

Cost of Self-Transport of Solid Waste

The overall regional transportation cost was determined for the theoretical situation in which each family, consisting of 3.6 persons*, was assumed to haul its own solid waste to the nearest sanitary landfill once per week. This situation was analyzed for the disposal alternatives of one, three, four and five optimally located sanitary landfills.

For each township, the accumulated annual travel distance was calculated

*Data from official U.S. Department of Commerce records.

Figure 12

Optimal Locations of Sanitary Landfills
for Alternative Numbers of Landfills

by obtaining the product of (a) the roundtrip distance from the township population centroid to the disposal site, (b) the number of families in the township (residents/3.6), and (c) the annual number of trips to the landfill per household (i.e., 52 trips/year). For each alternative number of sanitary landfills, the total annual travel distance involved for the four-county region was determined by summing the accumulated distance for the 44 townships. Finally, the regional transportation cost was computed by analyzing a unit cost factor of \$0.10/mile to the total annual mileage. The resulting costs are summarized in Table 24. Note the drastic decrease in unit transportation costs with increases in the number of disposal sites.

Transportation Costs Using Present Public and Private Collection Equipment

According to the 1968-69 statewide survey of community solid waste practices, approximately 61,400 residents (or 38.6% of the population) of the Eastern Appalachia region currently are not served by organized solid waste collection. Assuming the same percentage was valid for 1960 population figures, the unit costs of solid waste transportation between the township centroids and the disposal sites were estimated using the township populations for 1960 reported in Appendix A. Only the four-landfill alternative was evaluated for this solid waste collection situation.

Transportation costs were computed for "urban townships", or fractions thereof which were known or assumed to have organized solid waste collection (Table 6). Then, for the rural population not served

TABLE 24

COST OF SELF-TRANSPORT OF SOLID WASTES WITH
VARYING NUMBERS OF SANITARY LANDFILLS

Number of Regional Sanitary Landfills	Total Annual Cost to Residents \$/Year	Unit Solid Waste Transportation Cost	
		\$/Ton	\$/Person/Year
1	\$8,090,000	\$60.80	\$55.91
3	3,960,000	29.80	27.39
4	2,060,000	15.45	14.22
5	1,830,000	13.79	12.68

by collection systems, the cost of self-transport of solid waste was evaluated.

The first step in determining urban transportation costs involved a somewhat subjective determination of the township's populations having organized collection, as shown in Table 25. Using the urban solid waste generation rate of 6.96 pounds/capita/day, the number of truckloads of solid waste to be transported from the population centroids of the urban townships to disposal sites was computed. One 16 cubic yard truckload of refuse having a compacted density of 500 pounds/cubic yard would serve 3.15 persons per year. Next, the distance from each urban township centroid to the nearest optimally located sanitary landfill was multiplied by the applicable number of truckloads per year. These township distances were summed over the entire region to yield the total annual mileage driven.

Finally, the cost of transportation was evaluated at \$0.52/vehicle-mile (3). This value includes fuel, repairs, vehicle maintenance and depreciation, and labor* for the transportation phase only. It excludes the time-related costs of house-to-house collection and crew relief time which typically account for 75-90% of the total municipal collection and transportation cost, but which are virtually independent of sanitary landfill location.

*Labor costs were estimated for a two-man crew, receiving a \$3/hour wage, riding in the collection vehicle traveling at 20 miles/hour (average). Thus, labor costs amount to \$0.30/mile.

TABLE 25

ALLOCATION OF ORGANIZED COLLECTION SERVICES TO TOWNSHIPS

County and Township	1960 Population	Assumed Fraction of Population Served by Organized Collection	Population Having Organized Collection
<u>Alexander County</u>			
5. Taylorsville Twp.	5,810	1.00	5,810
<u>Burke County</u>			
5. Drexel Twp.	2,594	1.00	2,574
6. Lovelady Twp.	7,010	1.00	7,010
7. Icard Twp.	8,692	0.70	6,084
10. Silver Creek Twp.	4,394	0.50	2,197
11. Morganton Twp.	21,274	1.00	21,274
<u>Caldwell County</u>			
7. Lower Creek Twp.	10,007	0.70	7,005
8. Lenoir Twp.	15,609	0.80	12,487
11. North Catawba Twp.	2,405	1.00	2,405
12. Hudson Twp.	5,240	1.00	5,240
13. Lovelady Twp.	7,477	0.90	6,729
<u>McDowell County</u>			
2. Nebo Twp.	1,897	0.60	1,138
9. Old Fort Twp.	3,956	0.60	2,374
10. Marion Twp.	13,287	0.70	9,301
Total			91,628

Each rural family consisting of 3.6 persons was assumed to transport all its own solid waste once per week at a travel cost of \$0.10/vehicle mile. The round-trip travel distance was measured from the township centroid to the sanitary landfill over existing roads.

The total transportation cost for the four-county region was determined to be \$1.25 million annually, or \$9.37/ton of solid waste. Of this expense, 90.8% was contributed by the 38.6% of the population without organized collection service. The low urban solid waste transportation costs can be attributed to the proximity of the optimally located sanitary landfills to the major municipalities, i.e. Marion, Morganton, Lenoir, and Taylorsville.

The high cost of self-transport of rural solid waste undoubtedly accounts for the large number of general use and promiscuous open dumps in the region. This high, inequitable cost also illustrates the fact that the enforcement of backyard burning and open dumping ordinances will be exceedingly difficult unless a regular solid waste collection service is extended to these rural residents.

Transportation Costs with a Rural Bulk Collection System

The advantages of providing bulk-containerized solid waste collection service to rural residents presently without collection service are obvious. If an adequate number of containers are provided, no family will have to drive more than 5 miles to dispose of its solid waste, instead of the 20-mile distance encountered without a bulk collection system. Costs would be expected to decline sharply because the accumulated annual travel distance involved would be drastically reduced, although labor and capital costs of the bulk container

collection system would partially offset this cost advantage.

An analysis was performed to determine representative operating and capital costs of a rural bulk-containerized solid waste collection system, adequately sized to serve the 61,400 residents currently without solid waste collection. The equipment and budgetary requirements for this collection system are presented in Appendix C. To provide a basis for comparing the transportation costs to the region with previous analyses, the cost per ton for hauling solid waste from rural township centroids to disposal sites using a bulk collection system was computed for the three, four, and five sanitary landfill alternatives.

For a bulk-container collection system, the annual operating cost will include personnel and equipment costs. A previous study (3) determined that a representative hourly owning and operating cost* for a 25 cubic yard compactor vehicle was \$5.10/hour. Assuming an average vehicle speed of 15 miles per hour including collection stops, the unit cost becomes \$0.34/mile. Similarly, a rural bulk-containerized solid waste collection system in Chilton County, Alabama (4) reported annual depreciation and operating cost data which yields \$0.30/mile for a 30 cubic yard compactor vehicle. Assuming an average owning and operating cost figure of \$0.32/mile plus a labor cost of \$0.23/mile or (\$3.40/hour), the vehicle and labor expense for a rural bulk

*Owning and operating cost includes fuel, repairs, lubrication, maintenance, and vehicle depreciation.

collection system was computed on the basis of \$0.55/mile.

The total annual distance to be driven by bulk collection vehicles was estimated as follows. The number of 25 cubic yard truckloads generated within each township was computed using the solid waste generation rate of 2.0 pounds/capita/day, the rural township populations (i.e. the populations not included in Table 25, and a compacted refuse density of 500 pounds/cubic yard. Then, the roundtrip distance between the township population centroid and the disposal site was applied to the number of truckloads per year to yield the mileage driven annually in transporting that township's solid waste. Summation of these distances over the 44 townships yielded the total distance for the region.

This procedure undoubtedly underestimated the total mileage which would be incurred in an actual system. First, the collection vehicles would usually travel to the disposal site only partially loaded, thereby necessitating more loads. Similarly, only an integer number of vehicles can be purchased so that some vehicle capacity made available would not actually be utilized. Secondly, many more miles would be driven within townships in collecting from containers than was reflected in the foregoing procedure. The relative magnitude of this discrepancy is related to the proximity of the township to the landfill. On the other hand, the use of collection routes which interconnect the townships, which would be the case in any real system application, would tend to shorten the overall distance travelled.

Based on the above reasoning, it was decided to double the roundtrip township centroid-to-landfill distances to more accurately reflect the

distances to be traveled in the real-world situation. The resulting transportation cost figures were used only for determining the number of sanitary landfills, and not for budgetary purposes.

The cost of transporting urban solid waste collected by existing public and private collectors was unaffected by introducing the rural collection system. The method of computing these costs was previously described.

The results of the transportation cost analysis for the proposed solid waste collection system, involving the retention of all present organized collection services and initiation of a rural bulk containerized collection system, are presented in Table 26. Capital cost estimates for the bulk containers and for container site preparation were developed in Appendix C.

The cost per ton values contained in the last column of Table 26 were averaged over the entire population of the four-county region. The urban collection systems would incur a significantly lower cost per ton (\$0.73-\$2.33/ton). The rural collection system, on the other hand, would cost \$3.50-\$5.00/ton of solid waste actually hauled by this system.

For a regional solid waste disposal system consisting of four sanitary landfills, the rural population, 38.6% of the total, would account for only 34.5% of the total regional solid waste transportation cost provided the rural bulk-containerized solid waste collection system is fully implemented. This cost distribution is far more equitable than was the previous situation without collection service to rural residents.

TABLE 26

TRANSPORTATION COSTS WITH RURAL BULK COLLECTION SYSTEM WITH
VARYING NUMBER OF SANITARY LANDFILLS

Number of Sanitary Landfills	Estimated Cost of Transporting Urban Waste \$/Year	Estimated Cost of Transporting Rural Solid Waste \$/Year	Rural & Urban Transporta- tion Costs Based on:		Regional Cost of Bulk Containers \$/Year	Total Regional Transportation Cost (1970 Population Basis)	
			1960 Population \$/Year	1970* Population \$/Year		\$/Year	\$/Ton
3	\$271,400	\$78,300	\$349,700	\$385,600	\$19,500	\$402,100	\$2.74
4	115,100	49,800	164,900	181,800	19,500	201,300	1.37
5	84,500	51,400	135,900	149,900	19,500	169,400	1.15

*The total cost for 1960 population magnitude and distribution was scaled upward in direct proportion to the 1970 population magnitude.

Comparison of Costs for Alternative Systems

The selection of the most economical number of sanitary landfills and the type of collection system to employ in the Eastern Appalachia region should be based on the criterion of minimizing the combined costs of sanitary landfill operation and solid waste transportation. These costs were developed in detail in the foregoing sections and are summarized in Tables 27 and 28 and in Figure 13.

In Table 27, the marked decrease in solid waste transportation cost caused by the introduction of the bulk-container collection system should be noted.

According to Figure 13, and Table 28, the least-cost solution to the region's solid waste management problems is to provide five sanitary landfills, located approximately as shown in Figure 12, along with a rural bulk-containerized solid waste collection system for which the equipment requirements are itemized in Appendix C. The budgetary requirements for such a system are given in Tables 7, 8, 19, 20, 21, 22, and 23 and Appendix C.

However, if the officials and residents of the Eastern Appalachia region prefer a solid waste management plan in which each county has its own sanitary landfill, the four-landfill alternative will cost only \$0.14/ton (or \$0.13/resident/year) more than the five-landfill alternative, and would probably enhance local support for the new project. Another benefit derived from using four sanitary landfills instead of five would be easier management of personnel by the project director. The budgetary requirements for the four-sanitary landfill alternative are presented in Tables 7, 8, 14, 15, 16, and 17 and Appendix C.

TABLE 27

COMPARISON OF SOLID WASTE TRANSPORTATION COSTS FOR
VARIOUS TYPES OF COLLECTION

Number of Sanitary Landfills	Cost of Self-Transport of Solid Wastes \$/Ton	Transportation Cost with Present Collection Systems but without Rural Bulk Collection \$/Ton	Average Transportation Cost with Present Collection Systems and Rural Bulk Collection \$/Ton
1	\$60.80	--	--
3	29.80	--	\$2.74
4	15.45	\$9.37	1.37
5	13.79	--	1.15

TABLE 28

COMBINED REGIONAL COSTS OF SANITARY LANDFILL OPERATION
AND SOLID WASTE TRANSPORTATION

Number of Sanitary Landfills	Total Project Cost for Sanitary Landfills \$/Ton	Total Regional Cost for Solid Waste Transportation \$/Ton	Combined Regional Cost for Transportation and Disposal \$/Ton
1	\$1.09	--	--
3	1.24	\$2.74	\$3.98
4	1.46	1.37	2.83
5	1.54	1.15	2.69

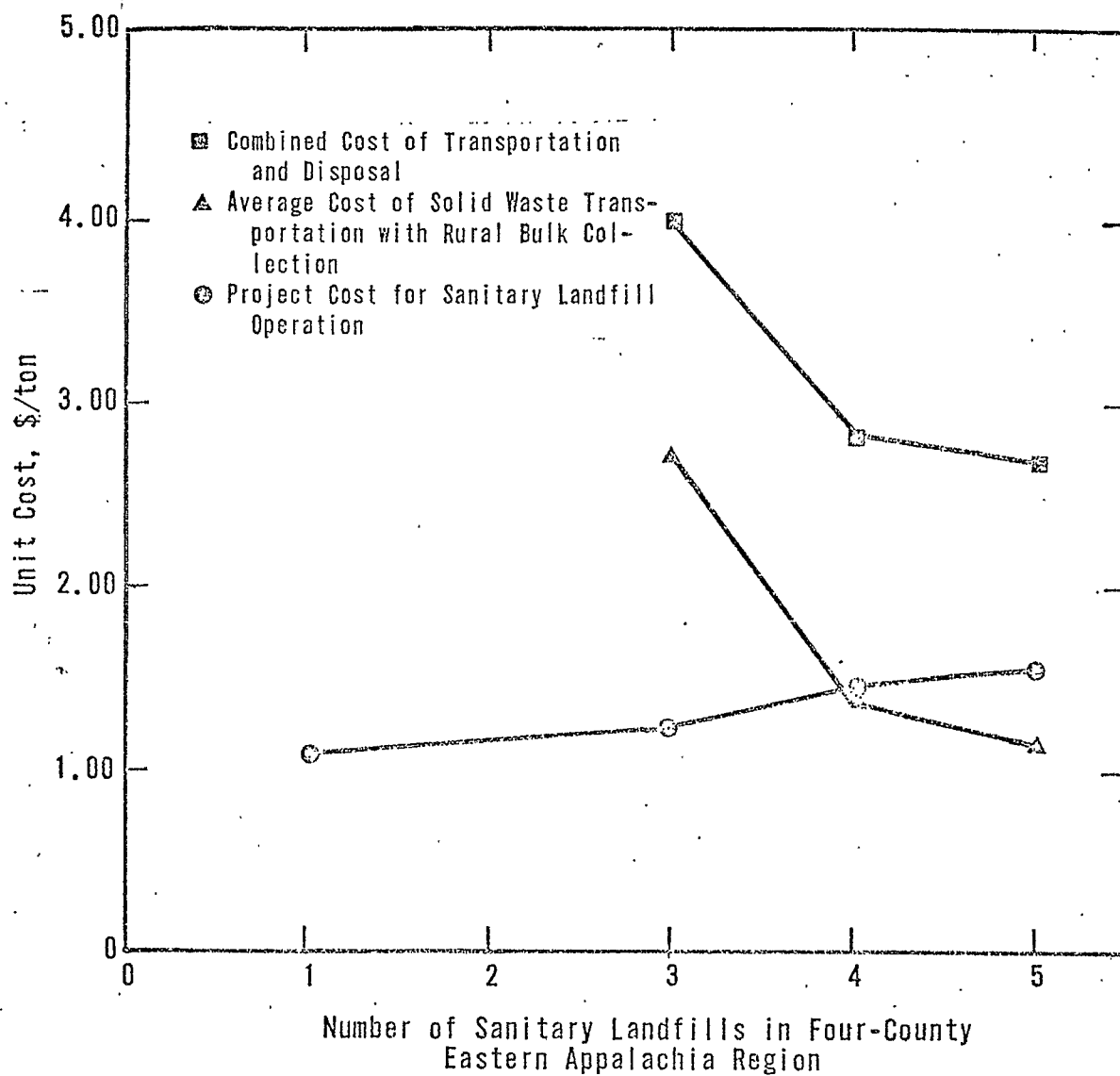


Figure 13. Comparison of total regional cost for transportation and disposal of solid waste for system alternatives considered.

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2. Sorg, T. J. and H. L. Hickman. Sanitary Landfill Facts. Public Health Service Publication No. 1792. Washington, U.S. Government Printing Office, 1968, pp. 15-20.
3. Stone, R., ed. A Study of Solid Waste Collection Systems Comparing One-man with Multi-man Crews. Public Health Service Publication No. 1892. Washington, U.S. Government Printing Office, 1969. pp. 95-131.
4. Alexander, R. M., ed. Clean and Green. Solid Waste Disposal Demonstration Project 1-D01-UI-00178-01. Bureau of Solid Waste Management, Public Health Service, 1969. 4 p.

CHAPTER III

RECOMMENDATIONS

Based on the results of the data analysis presented in the previous chapter, the following recommendations are made to the Regional Health Council of Eastern Appalachia. First, the county commissions of Burke, Caldwell, McDowell, and Alexander Counties should form a regional solid waste management commission. This commission, properly constituted by law, should regulate solid waste management practices in the region under uniform regional solid waste ordinances and regulations. It should provide means for acceptable disposal of all solid wastes generated within the region and for the collection of the solid waste produced by 61,400 residents not presently served by either public or private collection. The regional solid waste management commission should, using recommended procedures, close all existing open dumps in the four-county region.

The commission should establish four sanitary landfills, one each in McDowell, Burke, Caldwell, and Alexander Counties. The recommended land, equipment and personnel requirements, along with the estimated cost to the project, for installing and operating the sanitary landfills were given in Tables 7, 8, 14, 15, 16, and 17 in the previous chapter. Mandatory operating requirements for the four sanitary landfills should be:

- a. Daily cover of solid waste with at least 6 inches of compacted earth at the end of each working day.

b. The absence of visible blowing refuse at the end of each working day.

c. Prevention of all refuse burning at the sanitary landfill site.

The four sanitary landfills should be located as near as possible to the county seats of each county, i.e. Marion, Morganton, Lenoir and Taylorsville, in order to minimize the cost to the region for transporting solid waste. Actual selection of the sanitary landfill sites is left to the regional commission working in conjunction with state sanitary engineers and local health officials.

The regional commission should initiate a rural bulk-containerized solid waste collection system to provide collection service to 61,400 permanent residents and thousands of recreational visitors to the region. The requirements for equipment and personnel to fully implement the proposed collection system are listed in Appendix C, Table C-1. Without an adequately-sized rural collection service, regulations prohibiting refuse burning and the dumping of refuse in unauthorized areas cannot be effectively enforced. Furthermore, the transportation cost to the region's residents will be much less with a rural bulk collection system.

The total actual cost to the regional project for implementing the system of four-sanitary landfills and the rural bulk collection systems will be approximately \$288,434/year or \$1.73/person/year (not including finance charges, which is an average of \$1.88/ton. Total initial costs for capital expenditures are estimated at \$655,475.

Consideration could be given to implementing the recommended solid waste management system in phases. Initial and operating costs of the system can be derived from uniform taxation of all residents and business establishments within the four-county region. Other sources of revenue could include Federal grant programs, loans, and the sale of revenue bonds.

APPENDIX A

POPULATIONS OF COUNTIES, TOWNSHIPS,
AND MUNICIPALITIES WITHIN THE
EASTERN APPALACHIA HEALTH REGION

TABLE A-1

POPULATION OF TOWNSHIPS WITHIN EASTERN APPALACHIA REGION

County or Township	Population in Census Years		
	1940	1950	1960
A. <u>Alexander County</u>	13,454	14,534	15,625
1. Little River Twp.	704	767	500
2. Sugar Loaf Twp.	950	897	858
3. Gwaltneys Twp.	1,441	1,421	1,257
4. Sharpes Twp.	2,476	2,640	2,764
5. Taylorsville Twp.	3,892	4,813	5,810
6. Ellendale Twp.	1,539	1,482	1,892
7. Wittenburg Twp.	1,629	1,821	1,906
8. Millersville Twp.	823	713	638
B. <u>Burke County</u>	38,615	45,518	52,701
1. Jonas Ridge Twp.	625	572	457
2. Upper Creek Twp.	814	609	508
3. Lower Creek Twp.	1,054	1,004	1,168
4. Smokey Creek Twp.	286	284	229
5. Drexel Twp.	2,448	2,414	2,594
6. Lovelady Twp.	5,218	6,414	7,010
7. Icard Twp.	5,071	7,080	8,692
8. Lower Fork Twp.	1,276	1,280	1,417
9. Upper Fork Twp.	699	644	1,349
10. Silver Creek Twp.	3,406	3,844	4,394

TABLE A-1 Cont'd

County or Township	Population in Census Years		
	1940	1950	1960
<u>Burke County, Contd.</u>			
11. Morganton Twp.	15,371	18,088	21,274
12. Quaker Meadow Twp.	1,208	2,045	2,277
13. Linville Twp.	1,139	1,220	1,282
C. <u>Caldwell County</u>	35,795	43,352	49,552
1. Globe Twp.	736	492	305
2. Mulberry Twp.	705	753	1,062
3. Patterson Twp.	1,626	1,965	2,108
4. Yadkin Valley Twp.	1,134	1,060	1,008
5. Kings Creek Twp.	1,202	1,377	1,360
6. Little River Twp.	1,693	2,060	1,994
7. Lower Creek Twp.	6,353	8,437	10,007
8. Lenoir Twp.	11,776	14,255	15,609
9. Johns River Twp.	1,067	956	932
10. Wilson Creek Twp.	45	97	107
11. North Catawla Twp.	982	1,781	2,405
12. Hudson Twp.	2,492	3,363	5,240
13. Lovelady Twp.	5,922	6,756	7,477
D. <u>McDowell County</u>	22,996	25,720	26,742
1. North Cove Twp.	1,661	1,550	1,174
2. Nebo Twp.	1,157	1,638	1,897

TABLE A-1 Cont'd

County or Township	Population in Census Years		
	1940	1950	1960
<u>McDowell County, Contd.</u>			
3. Higgins Twp.	574	767	1,236
4. Dyartsville Twp.	823	832	920
5. Brackett Twp.	264	200	166
6. Glenwood Twp.	659	928	942
7. Montford Cove Twp.	745	954	1,543
8. Crooked Creek Twp.	1,221	1,238	1,621
9. Old Fort Twp.	3,364	3,582	3,956
10. Marion Twp.	12,534	14,031	13,287

TABLE A-2

POPULATIONS OF MUNICIPALITIES WITHIN
EASTERN APPALACHIA HEALTH REGION

County or City	Population in Census Years		
	1940	1950	1960
A. <u>Alexander County</u>			
1. Taylorsville	1,122	1,310	1,470
2. Stoney Point(Uninc.)	--	1,020	1,015
B. <u>Burke County</u>			
1. Drexel	881	988	1,146
2. Glen Alpine	665	695	734
3. Hildebran	337	529	518
4. Morganton	7,670	8,311	9,186
5. Rhodhiss (Burke Co.)	321	336	328
6. Valdese	2,615	2,730	2,941
C. <u>Caldwell County</u>			
1. Granite Falls	1,873	2,286	2,644
2. Hudson	748	922	1,536
3. Lenoir	7,598	7,888	10,257
4. Mortimer	42	13	3
5. Patterson	158	195	265
6. Rhodhiss (Caldwell Co.)	609	587	509
7. Whitnel (Unincorporated)	--	1,405	1,234

APPENDIX B

EXAMPLE OF THE USE OF THE INCREMENTAL INCREASE METHOD FOR COMPUTING POPULATION PROJECTIONS-- BURKE COUNTY, NORTH CAROLINA

Year	Population	Increase in Population	Change in Population Increase
1940	38,615	--	--
1950	45,518	6,903	--
1960	52,701	7,183	280
1970*	57,398	4,697	- 2,486
	Total	18,783	- 2,206
	Average Change	6,292	- 1,103
1980	62,587	5,189	- 1,103
1990	66,673	4,086	- 1,103
2000	69,656	2,983	- 1,103

*Preliminary 1970 population census figure.

APPENDIX C

EQUIPMENT REQUIREMENTS AND COSTS OF RURAL SOLID WASTE COLLECTION SYSTEM

Design Quantity of Solid Waste

The number of people presently without solid waste collection services in the four-county Eastern Appalachia Health Region was estimated at 61,394 by the 1968-69 statewide survey of community solid waste practices. These people generated solid waste at an average rate of 2.0 pounds/capita/day. In addition, the recreational users of the lakes in the region generated an estimated 633 tons of solid waste annually (see Table 4), which is equivalent to the contribution of 1,811 rural dwellers. Thus, the design population for the rural bulk-container solid waste collection system is McDowell, Burke, Caldwell and Alexander Counties is 63,200 persons.

Experience gained with the rural bulk collection system installed in Chilton County, Alabama, has indicated that bulky items (such as brush, dead animals, demolition wastes, and farm machinery) as well as yard and garden wastes are not emptied into the bulk containers by rural residents. As a result, the Chilton County system handles an average of only 0.68 pounds/capita/day for rural residents.

Therefore, it appeared advisable to design the rural bulk collection system for Eastern Appalachia using a solid waste generation rate of 1.00 pounds/capita/day. More containers and vehicles can then be added to the system as needed.

Container Capacity Requirements

Using the above waste generation rate and an uncompacted solid waste density of 175 pounds/cubic yard in the bulk containers, the daily solid waste volume would be:

$$\begin{aligned}\text{Solid Waste Volume} &= \frac{(1.0 \text{ pounds/capita/day}) (63,200 \text{ persons})}{(175 \text{ pounds/cubic yard})} \\ &= \underline{361 \text{ cubic yards/day}}\end{aligned}$$

The minimum number of 4-cubic yard bulk containers needed for twice-weekly collection and 100% utilization of container volume would be:

$$\begin{aligned}\text{Number of Containers} &= \frac{(361 \text{ cubic yards/day}) (3.5 \text{ days})}{(4 \text{ cubic yards/container})} \\ &= \underline{316 \text{ containers}}\end{aligned}$$

However, if the containers are 75% full on the average for each collection event, a total of 421 containers will be needed.

Vehicle Requirements

The number of 25 cubic yard compactor vehicles required can be computed as follows. Assuming a compacted refuse density of 500 pounds/cubic yard in the trucks, the solid waste tonnage handled daily by each collection vehicle in completing two loads would be 25,000 pounds/vehicle/day. The average quantity of solid waste to be handled daily in the four-county region is 63,200 pounds/day.

Therefore, the number of vehicles required is:

$$\begin{aligned} \text{Number of 25 cubic yard} &= \frac{63,200 \text{ pounds/day}}{25,000 \text{ pounds/day/truck}} \\ \text{Collection Vehicles} & \\ &= 2.57 \text{ or } \underline{\underline{3 \text{ trucks}}} \end{aligned}$$

With 421 containers distributed along roadsides throughout the region, each compactor truck must collect from an average of 40 containers per day to provide twice weekly collection. By comparison, in Chilton County, Alabama, a single vehicle services 90 containers in two days, or 45 containers/day.

Budgetary Requirements

Capital and operating costs for the rural solid waste bulk collection system are presented in Table C-1. The cost of bulk containers and site preparation for these containers would be about \$19,471/year. The vehicle-and-personnel-related costs total \$45,995/year. Therefore, the total cost for the bulk container system of \$65,466/year is equivalent to \$5.66/ton. This unit cost is higher than that listed in Table 26 (which was used solely for determining the optimum number of sanitary landfills) primarily because of inaccuracies in estimating the annual travel distances involved in collecting and transporting the solid waste from each township. The costs presented in Table C-1 represent the actual expenditures which the region must be prepared to meet to own and operate an adequately-sized rural bulk collection system.

TABLE C-1

EQUIPMENT AND OPERATING COSTS FOR THE BULK-CONTAINER
SOLID WASTE COLLECTION SYSTEM

Item	Number or Quantity	Unit Price	Total Initial Cost \$	Estimated Life Years	Annual Cost \$/Year
1. Collection Vehicle Operations	3	\$ 6,000/yr	--	--	\$18,000
2. Fringe Benefits for Operators	3	900/yr	--	--	2,700
3. Compaction Vehicles (25 cubic yards)	3	26,500	\$79,500	6	13,250
4. Fuel, Repairs, Etc. for Compactor Vehicles	5,460 hrs/yr	2.10/hr	--	--	11,460
5. Bulk Containers (4 cubic yards)	421	250	105,250	8	13,156
6. Site Preparation for Bulk Containers	421	75	31,575	5	6,315
7. Personnel Training	3	300	900	4	225
8. Uniforms for Drivers	3	120/yr	--	--	360
Total					\$217,225
					\$65,466

TABLE A-2 (Contd.)

County or City	Population in Census Years		
	1940	1950	1960
D. <u>McDowell County</u>			
1. East Marion (Uninc.)	--	2,901	2,442
2. Marion	2,889	2,740	3,345
3. Old Fort	774	771	787
4. West Marion (Uninc.)	--	1,233	2,335

*Burke
JNR*

October 22, 1971

Mr. Max Johnson
Director
Eastern Appalachia Health Council
Morganton, North Carolina 28655

Dear Mr. Johnson:

I am attaching a copy of an evaluation of the solid waste disposal facilities of the Eastern Appalachia Regional Solid Waste Commission consisting of Burke, Caldwell, McDowell, and Alexander Counties.

If we can provide you with additional assistance, I shall appreciate hearing from you.

Very truly yours,

Sidney H. Usry, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

bm

Attachment

cc: Mr. Cyrus Brooks
Dr. Richard Graham
Mr. Roland Stump

copy sent to J. N. Zulp, Jr.

STATE BOARD OF HEALTH
SANITARY ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

REPORT OF INVESTIGATION OR INSPECTION OF Solid Waste Disposal Facilities

Place visited Eastern Appalachia Regional Solid Waste Date September 29 19 71
Commission consisting of Burke, Caldwell, McDowell,
Address and Alexander Counties Time spent 1 day
By whom O. W. Strickland, Solid Waste Program Coordinator; Jerry C. Perkins, Sanitary
Engineer; and J. N. Fulp, Sr., District Sanitarian
Persons contacted Mr. Max Johnson, Solid Waste Project Director (Four-County Region)
(Owner, agent, tenant, manager, other)

Reason for visit To evaluate the status of solid waste disposal facilities and operations

Copies to: Mr. Cyrus Brooks, City Manager, Morganton, N. C.
Dr. Richard Graham, 338 S. Mulberry St., Lenoir, N. C. 28645
Mr. Roland Stump, 201 S. Green St., Morganton, N. C.
Mr. Max Johnson, Director, Eastern Appalachia Health Council, Morganton, N. C.

REPORT:

The above named personnel of the State Board of Health inspected the sanitary landfill facilities and operations of each of the four sanitary landfill sites of the four-county region of the Eastern Appalachia Solid Waste Program on September 29, 1971.

The facilities were viewed from two points of reference, one being the State Board of Health "Rules and Regulations Providing Standards for Solid Waste Disposal" and the other being the approved budget for model operations in the program.

Of the physical facilities, the most noticeable deficiencies were the lack of the following:

1. Site preparation including presentable gates and fencing at the entrances of the sites (except for the Alexander County site), signs, green shrubs and grasses to complement the entrances and to present a sanitary impression of the site and operation.
2. Facilities for equipment storage that are not only functional but provide examples for neighboring counties to follow.
3. Office facilities for the supervisor and the operators by the installation of telephones, grease and oil storage, and a place of comfort during periods of harsh, inclement weather.
4. Toilet facilities for the operators.
5. Uniforms which project the professional image for operators of solid waste disposal facilities.

Of the operations, the most noticeable deficiencies were lack of adequate dyking material at strategic points and as called for in the approved operational plans. On the site that was converted from a former dump, rat populations are prevalent and a need for an effective extermination program is very evident. A need to solicit local enforcement of the North Carolina litter laws is needed at the Burke County site to help alleviate the conditions persisting at the entrance to the site.

In the area of day-to-day operation, more detailed supervision needs to be given to the operators to insure that the plans of operation will be followed and to insure compliance with Section XI of the North Carolina State Board of Health "Rules and Regulations Providing Standards for Solid Waste Disposal."

While this report points out noticeable deficiencies, the site in Alexander County was noted to be in full compliance with the exceptions of suitable and adequate equipment storage and office space.

JGP:bm

ENVIRONMENTAL PROTECTION AGENCY
CATEGORICAL PROGRAMS DIVISION
REGION IV

1421 Peachtree St., N.E., Atlanta, Georgia 30309

Burke
JHR

August 29, 1972

RECEIVED

Mr. Sidney Usry, Chief
Solid Waste and Vector Control Section
Division of Sanitary Engineering
North Carolina State Board of Health
P.O. Box 2091
Raleigh, NC 27602

SEP 1 1972

**SANITARY ENGINEERING
DIVISION**

Dear Mr. Usry:

This will confirm our telephone conversation of August 23, 1972, indicating my planned trip to visit two Appalachian Regional Commission solid waste projects (Morganton and Boone, NC) on August 30 & 31, 1972. Mr. Ronald Ellis, Acting Chief, Solid Waste Abatement Section, and myself will meet you or your designated representative in Morganton at 9:00 AM in the office of Mr. Max Johnson. Should there be a change in plans, we will advise you.

Sincerely,

Thomas A. Strickland

Thomas A. Strickland
Chief
Technical Assistance Section
Solid Waste Management Branch

cc: Jake Smith (ARC)
Max Johnson (Morganton)
Andrew Yasinsac (Boone)

Room 423

RECEIVED

August 4, 1972

AUG 10 1972

SANITARY ENGINEERING
DIVISION

Mr. Max D. Johnson
Solid Waste Project Director
Regional Public Health Agency, Inc.
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Johnson:

Re: Appalachian Grant No. 04-H-000005-02-0

This is to inform you and the Regional Health Council of Eastern Appalachia of the recommendations and observations made by Mr. Thomas Strickland, Environmental Protection Agency, acting as Consultant for the Appalachia Program and Mr. Jacob Smith, Assistant Regional Representative - Appalachia Program, made on a site visit to the Solid Waste Program in Burke, McDowell, Alexander and Caldwell counties on July 13-14, 1972.

As a result of the site visit and a review of the original grant application and continuation grant, it is very apparent that many responsible people have not been made fully aware of both the operational standards and what the project is to accomplish during the grant period. It is, therefore, recommended that the applicant review the original grant application and the continuation application along with the grant award notice with conditions and understand thoroughly what the funding agency has purchased. On some items, the grant agreement may be more stringent than the State rules and regulations. In the event of this, the grant agreement must be adhered to. This means that the State rules and regulations must be complied with, but where the grant calls for more stringent steps than the State, then this is the agreement the Regional Health Council of Appalachia has entered into and received funds to implement.

Progress has been noted in the implementation of four landfill sites and the implementation of a collection system. While one has to recognize some progress, it should be clearly understood

Mr. Max D. Johnson
August 4, 1972
Page 2

that the overall accomplishment of this program is not one to be proud of taking into consideration the monies available, personnel, and the time period in which implementation has taken place. Alexander County has an operational landfill site. McDowell County is very close to becoming an approvable landfill operation with the correction of some minor deficiencies. Burke and Caldwell sites are both considered dumps. A key part of the terms of the grant award was one in which funds were available to finance the development and operation of various sanitary landfills. These funds will not be continued to support dumps. The Caldwell County landfill site is abominable and should be closed. All deficiencies noted at this site were not minor but major. Some of these deficiencies are as follows:

1. Not working at 3-1 slope.
2. No single definite working area.
3. No directional signs at site.
4. Exposed refuse throughout the site area.
5. General appearance was unsightly.
6. Tires and other debris uncovered.
7. No evidence of adequate compaction for quite an extended period of time.
8. No equipment available to work site.
9. Insufficient intermediate cover.
10. Odor problems.
11. Vector problems.

Burke County landfill site is also classified as a dump. One would expect with the Regional Solid Waste Staff headquartered in Burke County and only a few miles from the site this would certainly be a model operation. After the site visit, it was realized that this assumption was grossly misleading. Some of the deficiencies at Burke County are as follows:

1. Insufficient intermediate cover.
2. Excessive litter throughout the site.
3. No defined work face.
4. Not working a 3-1 slope.
5. Uncovered refuse observed over site area.
6. No directional signs.
7. Large appliances discarded on access road.
8. Vector problems - flies.
9. Odor problems.

Mr. Max D. Johnson
August 4, 1972
Page 3

Burke and Caldwell counties have 30 days from the 25th of July to correct all deficiencies and become a sanitary landfill operation. It is truly felt that the Caldwell site can never become a suitable operation because of poor management in the many months prior to this report. It is, therefore, recommended that an alternate site be found as soon as possible. If, at the end of 30 days, these two operational sites are not acceptable as sanitary landfills, then it is recommended that all operational funds be stopped and all equipment purchased through project funds be pulled out.

One of the explicit conditions of the continuation grant award was that containers for waste be placed at the gate of each site during closed hours. There was not one site observed in which this condition was met. Also daily operational plans for a two-month period for each disposal site were supposed to have been prepared. It was quite obvious from the condition of the Caldwell site and the Burke County site that these plans, if in existence, were not being complied with.

At the Board meeting, the Board was apprised of the three sites that had been visited and alerted to the many deficiencies noted at the Caldwell site. Unfortunately, the Burke County site was not to be visited until the following day. Mr. Max Johnson's progress report at the Board meeting gave no indication that there were any operational problems at the Burke County site.

The following recommendations are made as a result of this site visit:

1. Deficiencies noted in the landfill operations of Caldwell and Burke counties and the recommendations made to Mr. Johnson in regards to McDowell County be corrected by August 25, 1972. If these deficiencies have not been corrected, it will be further recommended by this office that all federal funding for operational cost be terminated and all equipment purchased through federal funds be pulled off each landfill site that has failed to comply.
2. All terms and conditions of the grant award be strictly followed.

Mr. Max D. Johnson
August 4, 1972
Page 4

3. Operational plans must be developed for each sanitary landfill site and personnel associated with the site should be informed to the plan of operation. All State rules and regulations effecting the project be adhered to.
4. Adequate safety and training program be provided to all personnel associated with the Solid Waste Project.
5. Job description for all positions associated with the project, i.e., equipment operator, attendant, packer, truck operator, etc., "be developed and made available at each site and to the Regional Office."

In summary, it is recommended that the Advisory Board and Mr. Max Johnson exert all their energies and time in correcting the deficiencies and bringing the project in compliance with the conditions in terms of the grant award for both the original and the continuation grants.

If this office can be of any assistance in clarifying any area of this letter or in providing further technical assistance, please contact Mr. Jacob M. Smith, Assistant Regional Representative - Appalachia Program.

Sincerely yours,

Herbert A. Hudgins, M.D.
Associate Regional Health Director
for Health Services Delivery

By:

Jacob M. Smith
Assistant Regional Appalachian
Health Program Representative

JMSmith:jj

cc: William Beacham
Elmer Cleveland
Dr. Richard Graham
Elmer Johnson
Ralph Pollock
Roland Stump
Sid Usry ✓

Handwritten: Host Files

RECEIVED

AUG 7 1972

SANITARY ENGINEERING
DIVISION

Handwritten: Mr. Statin Burke
Handwritten: E. Appel Register
Handwritten: JFR
Circular stamp: AUG 1 1972, U.S. PUBLIC HEALTH SERVICE, DIVISION OF FIELD SERVICES, 1010 19th St., N.W., Washington, D.C. 20036

Honorable Robert W. Scott
Governor of North Carolina
State Capitol
Raleigh, North Carolina

Attn: Dr. William L. Turner
Appalachian Health Director

Dear Governor Scott:

Re: Appalachian Health Grant

We are pleased to provide you with copies of the Notice of Grant Award issued to the Regional Public Health Agency, Morganton, N. C. for continuation of the Solid Waste Disposal project in Burke, McDowell, Alexander and Caldwell counties.

This award provides \$77,040 in financial assistance under Section 202 of the Appalachian Regional Development Act to support the second year budget for this project.

Please call on this office if we may assist in any way.

Sincerely yours,

Frank J. Groschelle
Regional Director

Enclosures

CC: Dr. William L. Turner Appalachian Health Director
N.C. State Health Officer
Reg IV Hlth Svcs Del (Appalachian Program)

BVG:ahn:rh

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

OGM - Region IV
NOTICE OF GRANT AWARD

Under Authority of Federal Statutes and Regulations, and HSMHA
Policy Standards Applicable to the Following Grant Program:

Section 202 - Appalachian Regional
Development Act

8. TITLE OF PROJECT (OR PROGRAM) (Limit to 53 spaces)

Solid Waste Disposal

9. GRANTEE (Name and Address)

Regional Public Health Agency
201 South Green St.
Morganton, N.C. 28655

1. DATE ISSUED (Mo., day, yr.) AUG 01 1972	2. CATALOG OF FED. DOM. ASSIST. NO. 23.004
3. SUPERSEDES AWARD NOTICE dated _____ except that any conditions or restrictions previously imposed remain in effect unless specifically rescinded.	
ARC#0451-017-72	
4. PROJECT IDENTIFICATION NO. 04-H-000005-02-0	5. ADMINISTRATIVE CODES CS-H21-C
6. PROJECT PERIOD From 7/1/71	Through 3/31/73
7. BUDGET PERIOD From 4/1/72	Through 3/31/73

10. DIRECTOR OF PROJECT (PROGRAM OR CENTER DIRECTOR,
COORDINATOR OR PRINCIPAL INVESTIGATOR) (Name & Address)

Mr. Max D. Johnson, Director
Solid Waste Commission
Regional Public Health Agency
201 South Green St.
Morganton, N.C. 28655

11. APPROVED BUDGET FOR HSMHA FUNDS

BUDGET CATEGORIES For items identified by Asterisk*, see remarks	FINANCIAL ASSISTANCE A	DIRECT ASSISTANCE B
a. PERSONAL SERVICES	\$ 52,240	\$ -0-
b. PATIENT CARE		
c. EQUIPMENT	24,800	
d. CONSTRUCTION		
e. OTHER: _____ (Specify)		

ALL OTHER _____		
f. TRAINEE COSTS		
g. TOTAL APPROVED BUDGET	\$ 77,040	-0-

12. SOURCE OF HSMHA FINANCIAL ASSISTANCE

a. APPROVED BUDGET (11 g. Col. A)	\$ 77,040
b. INDIRECT COSTS (RATE _____ % Base: S&W - TADC of \$ _____)	\$ -0-
c. TOTAL	\$ 77,040
d. LESS UNOBLIGATED BALANCE FROM PRIOR BUDGET PERIOD(S)	\$ -0-
e. LESS CUMULATIVE PRIOR AWARD(S) THIS BUDGET PERIOD	\$ -0-
f. AMOUNT OF THIS ACTION	\$ 77,040

14. REMARKS

See page 2 for Special Conditions

Annual Report of Expenditures to be
submitted 60 days after close of the budget period

13. REQUIRED GRANTEE PARTICIPATION

- ☐ INSTITUTIONAL COST SHARING AGREEMENT
EFFECTIVE DATE _____
- ☐ INDIVIDUAL GRANT AGREEMENT _____ %
- ☒ MATCHING AGREEMENT _____ % (\$107,607)
- ☐ OTHERS _____ ☐ NONE REQUIRED

15. RECOMMENDED FUTURE SUPPORT (Subject to availability of funds)

BUDGET YEAR	FISCAL YEAR	BUDGET PERIOD	TOTAL DIRECT COSTS

16. ACCOUNTABILITY FOR EQUIPMENT

- ☐ CONDITIONALLY WAIVED ☒ NOT WAIVED ☐ NOT AP-
PLICABLE

17. FINANCIAL MANAGEMENT OFFICIAL (Title & Address)

Mr. John Bleynat
Secretary-Treasurer of the Board
Regional Public Health Agency
201 South Green St.
Morganton, N.C. 28655

18. HSMHA OFFICIAL (Signature, Name and Title)

Emil E. Palmquist
Emil E. Palmquist, M.D., M.P.H.
Regional Health Director

19. FOR HSMHA INFORM- ATION ONLY	a. PHS LIST NO. RO4-NIH-15-73	b. PAYMENT SYSTEM <input type="checkbox"/> HSMHA <input type="checkbox"/> R.O. <input checked="" type="checkbox"/> NIH	c. DIRECT ASSISTANCE FUNDS FY _____ \$ _____ FY _____ \$ _____	d. GRANTEE LOCATION CODES City 3130 State 37 County 028 Cong. Dist. 10
	e. ACCOUNTING DATA 75-11X0090(03) 02-0-M0892 2-3048110 41.51			

Office of Grants Management
Region IV

Page 2

04-H-000005-02-0

CONDITION: By June 30, 1972, the following should be implemented and met:

1. An operational collection system
2. The closing of all remaining dumps
3. The meeting of all conditions and requirements set forth by the States' solid waste program
4. Provide containers for waste to be deposited at the gate of each site during closing hours
5. Develop wet weather operational area plans for each site. Develop a daily operational plan for each disposal site at least two months into the future. The first set of plans for each sanitary landfill should be submitted to the ARC and Regional Office upon completion.

SANITARY ENGINEERING DIVISION
Marshall Staton, Director

TO: John Faulkner _____
John Andrews _____
Dayne Brown _____
James Stamey _____
W. J. Stevenson _____
~~Sidney Usry~~ _____

- ☒ For information *only and Central files*
☐ For action by your Section
☐ Please prepare letter for my signature
☐ Please prepare letter for Dr. Koomen's signature
☐ Let's discuss

REMARKS:

*This "Statement" is not
meaningful. Still doesn't conform
to National Act requirements, but
I suggest we forget it, since
our comments were not requested
JF*

STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION



Robert W. Scott
Burke
ROBERT W. SCOTT
GOVERNOR

W. L. TURNER
DIRECTOR
W. L. Turner

STATE PLANNING DIVISION
RONALD F. SCOTT
STATE PLANNING OFFICER

REPLY TO:

CLEARINGHOUSE AND INFORMATION CENTER
116 WEST JONES STREET
RALEIGH, N. C. 27603
(919) 829-4375

June 11, 1971

MEMORANDUM

RECEIVED

JUN 15 1971

TO: B. Gene Barrett

SANITARY ENGINEERING
DIVISION

FROM: Benjamin D. Seymour *BS*

SUBJECT: Clearinghouse Notification No. 71-0549

I wrote to Mr. Holleman as a follow-up to Mr. Staton's letter
to Mr. Hendricks on May 24.

This is the reply.

[Handwritten mark]

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA

201 SOUTH GREEN STREET

MORGANTON, NORTH CAROLINA 28655

704-433-1636

Executive Committee
H. EDWIN BEAM, Ed.D.
JOHN A. BLEYNAT
GLENN P. DEAL, D.V.M.
J. DON HUGHES, M.D.
PAUL D. HUGHES
J. T. McRAE, M.D.
WILLIAM J. MILLER
F. J. RAGAZ, M.D.
JOHN C. REECE, M.D.
HAROLD F. STANLEY
CARL D. TUTTLE

June 8, 1971

Mr. Benjamin D. Seymour
Assistant Coordinator
Clearinghouse Information Center
116 West Jones Street
Raleigh, N. C. 27602

Re: Clearinghouse Notification #71-0549
Proposal for Solid Waste - Area D
ARC (Section 202)

Dear Mr. Seymour:

I enclose the Environmental Impact Statement required by National Environmental Policy Act of 1969. This statement answers the five questions covered in Attachment C of the Clearinghouse Procedures Manual.

Your help in forwarding this material to the Sanitary Engineering Division of the State Board of Health is greatly appreciated.

Sincerely,



George Holleman
Health Planner

GH/krc

Enclosure

RECEIVED
JUN 10 1971

EXTENT OF ENVIRONMENTAL IMPACT ANTICIPATED
SOLID WASTE PROPOSAL REGION - D

The Solid Waste Proposal Region - D intends to correct a situation that has had adverse effects on the environment. This situation being the open burning of solid waste.

Disposal will be accomplished by the operation of a sanitary landfill. This system involves trench cutting, filling, compaction, and restoration of land to better than initial condition.

Since the disposal plan involves implementation of a system of sanitary landfills, these landfills are the alternative to the old system of burning refuse.

It has been pointed out in the above paragraphs that adverse effects on the environment will be corrected. It is anticipated that the short-term trenching and covering will transform the land into improved acreage. An example of this would be the operation of a sanitary landfill in the area of rough land for five years. At the end of this period, the landfill could be used as improved pasture.

Any timber on a landfill site would be replaced and any vegetation would be replanted at the termination of a landfill site operation.

RECEIVED
JUN 10 1971

Burke
JHR

June 22, 1971

Mr. George Holleman
Health Planner
Regional Health Council of
Eastern Appalachia
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Holleman:

Subject: Solid Waste Proposal - Region D

The above Solid Waste Proposal has been studied very carefully by myself and members of my staff. It is our opinion that it will be necessary to consider certain changes in order to adequately provide the services to the region that is planned in this project.

I feel that in the budgeting process that an annual operating budget should be complete rather than using an estimated portion of time for personnel and equipment. While it is realized that such a project cannot always be planned to begin complete operation at a specific time, it is recommended that for budgeting purposes a full year be considered. I would think that it would be advantageous to the participating counties that they realize their total contribution on an annual basis since they will be responsible for providing operational funds at the termination of Appalachia Regional Commission assistance.

I recommend that funds be requested for consultant services as they will be needed in the preparation of detailed plans for the disposal sites along with certain legal matters in connection with the purchase or lease of land. The State Board of Health will provide limited consultant services but with limited staff and the increase in volume of work being requested, it will not be able to provide much of the detailed services that will be necessary in order to comply with the Rules and Regulations Providing Standards for Solid Waste Disposal of this agency.

The recommendations for landfill equipment that was made by this agency was sized in accordance with the anticipated volume of material that would be received at each site. The proposed site for Wilkes would

Mr. George Holleman

Page 2

June 22, 1971

very definitely require a larger and heavier piece of equipment in order to properly maintain a sanitary landfill. The collection trucks were also sized in accordance with the requirements and it is felt that they should be purchased on this basis.

In our opinion, the operating expenses have been estimated too low especially in regard to repairs and maintenance. In dealing with heavy equipment, the item of repairs and maintenance can be very high due to the cost of parts and labor. I would suggest that this item be increased.

In studying this plan along with the recommendations that were prepared by Mr. Carl Tuttle, I find that we inadvertently omitted the cost of one collection vehicle that was recommended. This error in the amount of \$22,000 would have increased our estimate to a total of \$589,700 which makes an even greater difference in the two estimates.

I think the overall plan for this region has great potential and the comments above have only been made in an effort to assure sufficient funds for a successful program. This office will be glad to provide you with additional assistance if requested.

Very truly yours,

Sidney H. Uery, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

SHU:bm

cc: Mr. Carl Tuttle, Chairman
Regional Health Council

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA

201 SOUTH GREEN STREET

MORGANTON, NORTH CAROLINA 28655

704-433-1636

Executive Committee

H. EDWIN BEAM, Ed.D.

J. D. FRALEY

HOWARD T. GRAYDER

ARCHIE N. MCINTOSH, M.D.

ALBERT M. NEAL

JOHN C. REECE, M.D.

J. IVERSON RIDDLE, M.D.

T. W. WALTON

May 27, 1971

Mr. Sidney Usry
Chief of Insect and Rodent Control
North Carolina State Board of Health
Raleigh, North Carolina 27602

Dear Mr. Usry:

I am enclosing a copy of the Solid Waste Proposal - Region D. Since your office surveyed each county included in this proposal, the Department of Administration will call on you for a review of this. The proposal has been written as closely to the suggestions of the North Carolina State Board of Health as possible. If you find that this proposal needs additional supportive data or methods of implementation, please let me know as soon as possible.

Your review of this proposal is greatly appreciated.

Sincerely,

George Holleman
Health Planner

GH/krc

Enclosure

RECEIVED

May 28 1971

SANITARY ENGINEERING
DIVISION

STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION



Burke
ROBERT W. SCOTT
GOVERNOR
W. L. TURNER
DIRECTOR

STATE PLANNING DIVISION
RONALD F. SCOTT
STATE PLANNING OFFICER

WTR
REPLY TO:

CLEARINGHOUSE AND INFORMATION CENTER
116 WEST JONES STREET
RALEIGH, N. C. 27603
(919) 829-4375

May 28, 1971

Mr. George Holleman, Health Planner
Regional Health Council of Eastern
Appalachia, Inc.
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Holleman:

Re: Clearinghouse Notification No. 71-0549
Proposal for Solid Waste - Area D,
Appalachian Regional Commission(Section 202)

The State Board of Health concurs in the concept of the proposal, but wishes to point out that their estimate for capital investment was \$418,500 which did not include the cost of purchase of land for the five sanitary landfill sites. The Board is unable to determine whether the estimated cost of \$528,077 shown on the CIC #1 form includes purchase of land and operating costs as well as construction and equipment costs.

The State Board of Health also reviewed the Environmental Impact Statement and states that the statement does not provide the information required by the National Environmental Policy Act.

You perhaps will wish to contact the Sanitary Engineering Division of the State Board of Health directly and resolve these two issues. By doing so, your application for Federal funds will be enhanced. We will then be able to provide a favorable State Clearinghouse letter for the application.

Sincerely yours,

Benjamin D. Seymour
BENJAMIN D. SEYMOUR
Assistant Coordinator

BDS:pg

cc: Mr. B. Gene Barrett ✓

STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION



MAY 27 1971

ROBERT W. SCOTT
GOVERNOR

W. L. TURNER
DIRECTOR

STATE PLANNING DIVISION
RONALD F. SCOTT
STATE PLANNING OFFICER

REPLY TO:

CLEARINGHOUSE AND INFORMATION CENTER
116 WEST JONES STREET
RALEIGH, N. C. 27603
(919) 829-4375

May 26, 1971

Mr. George Holloman, Health Planner
Regional Health Council of Eastern
Appalachia, Inc.
201 South Green Street
Morganton, North Carolina 28655

Dear Mr. Holloman:

Re: Clearinghouse Notification No. 71-0549
Proposal for Solid Waste - Area D,
Appalachian Regional Commission(Section 202)

After receiving an S. F. 101 application for a solid waste disposal plan for Alleghany County, a proposal for a solid waste disposal plan for Region "D" was also received. This regional plan includes Alleghany County and seeks funds from the Appalachian Regional Commission.

The State Board of Health has approved a solid waste disposal plan for Alleghany County. The cost estimates on the S. F. 101 agree with the estimates by the State Board of Health. However, the State Board of Health favors the regional approach to the individual county plan if the regional plan proves feasible. The Board, of course, is assisting in the development of a regional plan.

The State Clearinghouse wishes to reserve final comment until the regional plan is developed. This office most likely will recommend the regional plan if it proves feasible.

Sincerely yours,

A handwritten signature in cursive script that reads "Benj. D. Seymour".

BENJAMIN D. SEYMOUR
Assistant Coordinator

BDS:pg

cc: Mrs. Ruth G. Johnson
Mr. G. Barrett ✓

REGIONAL HEALTH COUNCIL OF EASTERN APPALACHIA

201 SOUTH GREEN STREET

MORGANTON, NORTH CAROLINA 28655

704-433-1636

54
Strickland
Executive Committee

H. EDWIN BEAM, Ed.D.

J. D. FRALEY

HOWARD T. GAYDER

ARCHIE N. MCINTOSH, M.D.

ALBERT M. NEAL

JOHN C. REECE, M.D.

J. IVERSON RIDDLE, M.D.

T. W. WALTON

January 12, 1971

RECEIVED

JAN 15 1971

SANITARY ENGINEERING
DIVISION

Mr. Sidney Usry
Chief of Solid Waste Vector Control
North Carolina State Board of Health
Raleigh, North Carolina 27602

Dear Mr. Usry:

Mr. Strickland's visit with us was most helpful and informative. I feel that members of the commission as well as myself have a better understanding of the work and planning that has gone on in the past.

Mr. Strickland indicated that your department would assist in drafting an acceptable working plan for the four county region. As you know, this plan must be accepted and filed before any expenditure of fund can be made. In view of the time element I would like to arrange a meeting with you at your earliest convenience to begin drafting the solid waste plan.

I will anticipate hearing from you in the near future.

Sincerely,

Max D. Johnson
Max D. Johnson

MDJ/hrh

cc: Mr. O. W. Strickland

Discussed with Mr. Johnson and meeting arranged for Jan. 20, 1971

SHerry

Burke
JHR

November 13, 1970

Mr. J. Peter Hecht
Eastern Appalachia Regional
Commission
Morganton, North Carolina 28655

Dear Mr. Hecht:

I am attaching a proposed implementation schedule for the Eastern Appalachia Solid Waste Disposal Program. I hope that this will provide you with the necessary information that is required in order that this program may be implemented.

If I can provide you with additional assistance, I shall appreciate hearing from you.

Very truly yours,

Sidney H. Usry, Chief
Solid Waste & Vector Control Section
Sanitary Engineering Division

SHU:bm

Attachment

BURKE COUNTY HEALTH DEPARTMENT
MORGANTON, NORTH CAROLINA

JRR June 2, 1970

RECEIVED

Mr. Sidney H. Usry, Chief
Insect and Rodent Control
Sanitary Engineering Division
N. C. State Board of Health
Raleigh, N. C. 27602

SANITARY ENGINEERING
DIVISION

Dear Sid:

As you have heard, Mr. John Sweeden and Mr. Leroy Stone will be in Morganton the week of June 15, 1970. The purpose of this visit is to review, re-evaluate, revise and revamp the solid waste plan for the Eastern Appalachia Region.

There will be a meeting in Morganton for this planned review starting at 9:30 a.m. on June 15, 1970, and if possible we would like for you, Mr. Bill Strickland, and Mr. Jim Fulp, to attend; so that we may have the benefit of your advice and council.

At 7:30 p.m. on June 16, 1970 the up-dated plan will be submitted to the officials of Alexander, Burke, Caldwell, and McDowell counties as well as to the officials of the towns and cities involved for their consideration. I would also like for you to be represented at this meeting.

Sincerely yours,

Elmo J. Pascal (nr)

Elmo J. Pascal
Sanitarian Supervisor

EJP:nr

Copy: Mr. Bill Strickland
Mr. Jim Fulp
Mr. I. W. Southern

*Discussed with Mr. Pascal via tel. Mr. Strickland
and Mr. Fulp to attend*
SMiley

BURKE COUNTY HEALTH DEPARTMENT
MORGANTON, NORTH CAROLINA

JRR

January 26, 1970

RECEIVED

JAN 27 1970

**SANITARY ENGINEERING
DIVISION**

Mr. Sidney H. Usry, Chief
Insect and Rodent Control Section
Sanitary Engineering Division
N. C. State Board of Health
P. O. Box 2091
Raleigh, N. C. 27602

Dear Mr. Usry:

The Health Directors and some Sanitarrians from our four counties in the Eastern Appalachia Region have tentative plans for a meeting regarding solid waste disposal on February 16, 1970. If it is possible we would like your report on the waste disposal plan which you are going to submit for this area by this time. We appreciate your efforts and help on this matter.

Sincerely yours,

Elmo

Elmo J. Pascal
Sanitarian Supervisor

EJP/ld

Discussed with Mr. Pascal via tel Jan 29, 1970

SHUsry